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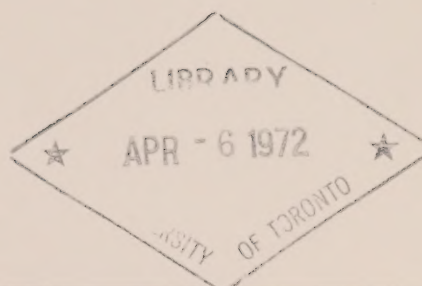



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Labour Division

NOTES ON LABOUR STATISTICS

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PREFACE

This issue of Notes on Labour Statistics is the first in an annual series. It is designed to meet a need for a periodical to keep users up to date regarding analytical studies and development projects in Statistics Canada, Labour Division. These include data series on the labour force, employment and unemployment, earnings, hours of work, labour income, labour costs (fringe benefits), unemployment insurance, industrial accidents, job vacancies and pensions.

The main work of the Division is represented in its statistical publications, all well known to users in the labour field. Perhaps not generally recognized is that modern data production involves a substantial research activity — as adaptations are made to changing circumstances, as new technology is brought into play, and as new techniques of analysis give rise to demands for new data series. In our view, some of the research and development work would be of interest to a wider audience and it is the purpose of this publication to make it available.

The publication is the responsibility of the Labour Division. Mrs. I.E. Johnson, formerly Chief of the Analysis and Development Section, was the prime organizer and served as Editor-in-Chief until leaving Statistics Canada. The final stages of this initial publication have been supervised by an editorial panel consisting of Helen Buckley, Co-ordinator, Research and Development (Chairman); D.J. Bailey, Director, Labour Division; and P. Hicks, Assistant Director.

WALTER E. DUFFETT,
Chief Statistician of Canada.

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Comparative Approaches to Improving Statistics

The last year's symposium was devoted to the Federal Department of Labour and the related departments of the provinces of Quebec, Ontario, Saskatchewan and Alberta for a comparative statistical program for person person data. These agencies supplied data from their administrative records for use in producing uniform person person data. The comparative program will provide a data bank of person person data for use in comparative statistical analysis. The comparative program will provide a data bank of person person data for use in comparative statistical analysis. The comparative program will provide a data bank of person person data for use in comparative statistical analysis.

To provide national coverage, these data were supplied for a survey of person person data for use in comparative statistical analysis. The comparative program will provide a data bank of person person data for use in comparative statistical analysis.

RECENT DEVELOPMENTS IN LABOUR STATISTICS

The Labour Division of Statistics Canada carries out a far-ranging survey program in the labour area. Possibly the best known of these programs is the monthly Labour Force Survey of 30,000 households which produces the familiar estimates of employment and unemployment as well as a wealth of related data. The division conducts monthly and annual surveys of establishments to produce widely-used data on industrial employment, hours, pay and other labour costs. A large-scale survey of employer job vacancies has recently been undertaken to provide long-needed information on the demand for labour. The Job Vacancy Survey is described in a separate article in this review. In addition to these main surveys, the division compiles statistics from the administrative records of the Unemployment Insurance Commission, produces information on pension plans, and undertakes a program of analysis and of development of new labour data, such as the statistics on industrial accidents described later.

New Release Practice for Labour Force Data

In the past year, the publication and release practices used in the Labour Force Survey were reviewed and a number of changes introduced. The new format of the monthly press release, which dates from August 1970, encouraged the media to use seasonally-adjusted data and to use an age breakdown (14-24 years and 25 years and over) for all main unemployment and employment series. The annual *Seasonally-Adjusted Labour Force Statistics*, which gives historic series of raw and seasonally-adjusted data, has been greatly expanded and an expansion of the main monthly publication is planned for 1971.

A special feature of the 1971 program will be a "fact book" on unemployment, to contain charts and tables describing characteristics of the unemployed. Planned for 1972 are a new quarterly publication and a very considerable increase in the amount of labour force data which will be released to analytic users by means of CANSIM, the Statistics Canada data bank.

Automation of Establishment Surveys

Work in automating the main monthly and annual establishment surveys has been proceeding for several years and will be mainly completed in 1971. The monthly surveys in question are the survey of employment, payrolls and hours in larger commercial establishments and the surveys of employment in other establishments. The annual surveys are the survey of employer labour costs and the detailed annual survey of hours and earnings in various industries. This automation lays the framework for future improvements in the quantity and quality of payroll-based statistics. In the short-run, automation has made it possible to produce a compre-

hensive monthly publication covering employment, average earnings, and average hours to replace the former separate publications for wage-earners and for all employees (Catalogue 72-002 and 72-003).

Payroll Data for the Education Industry

Data on numbers of employees in non-commercial industries have been collected for several years and attention is now being directed towards integrating these industries into the major survey operations, that is, collecting payroll data for their larger establishments. A start has been made among educational institutions and specific reporting problems are now being cleared up.

Labour Costs in Transportation, Finance and Related Industries

The division conducts an annual survey of main employer labour costs such as straight-time pay, overtime and other premium pay, payments for holidays, sickness, pension plans, unemployment insurance, and a series of other supplementary labour costs. In 1967 and 1968 the survey covered manufacturing industries. The 1969 survey was in mining. The 1970 survey relates to establishments in finance, insurance and real estate and in transportation, communication and other utilities.

Detailed Study of Earnings in Retail Trade

At the time of release of this review, results should be available from a detailed study of earnings in retail trade which was conducted in September, 1970. The study will include earnings comparisons for large and small firms and for male and female employees, and will quantify the impact of part-time employment on average weekly earnings in total and in specific urban areas.

Co-operative Arrangements for Pension Statistics

During last year negotiations were completed with the federal Department of Insurance and the pension commissions of the provinces of Quebec, Ontario, Saskatchewan and Alberta for a co-operative statistical program for private pension plans. These agencies supplied data from their administrative records for use in producing statistics regarding the coverage and characteristics of pension plans. This co-operative arrangement will provide a data bank of current, constantly updated pension statistics for an expanded publication program and through a quick retrieval facility will meet the varied needs of research users.

To provide national statistics, these data were supplemented by a survey in those provinces which do not exercise legislative control over private pension plans and thus do not have administrative records.

Special Labour Force Surveys

A full program of supplementary surveys, carried out in conjunction with the monthly Labour Force Survey, is undertaken by the division. In 1971 these surveys explored such areas as absence from work, work experience of students in the summer, characteristics of the unemployed, multiple jobholding, and ways of searching for jobs. The results of these surveys are released from time-to-time as special reports or as articles such as the one on educational attainment in this review. A regular means of release of these data will

be the quarterly labour force publication planned to start in 1972.

Pilot Study on Occupation Statistics

Over the past year the division has been exploring ways and means to produce estimates of the occupational distribution of the labour force on a current basis. Currently under investigation is the feasibility of using the Job Vacancy Survey capability for the collection of occupation data and the production of estimates. A pilot study was conducted in June and July of 1971.

YOUTH PARTICIPATION IN THE LABOUR FORCE: 1953 - 70

Nicole Gendreau*

In times of high unemployment, young persons have experienced much higher rates of unemployment than has the labour force as a whole.¹ It may be also that the youth sector has suffered from an even higher unemployment rate on account of the "discouraged worker" effect — that is, a tendency to leave the labour force when demand was falling² — and a main objective of this paper is to explore this possibility.

As background, we shall deal briefly with our data sources (Section I) and trace a general picture of the behaviour of youth's participation rates in the period under study (Section II). Finally, in Section III, we seek to establish what, if any, relationship exists between the participation rates of youth and the state of the economy as represented by unemployment rates.

I. Some Data Problems

Participation rates for all major age and sex groups are provided by the Labour Force Survey.³ For the age group 14 - 24 years, however, the analysis of participation rates is complicated by the fact that a large segment in this group is attending school. The proportion attending school varies through the year according to institutional customs; it also changes through time and decreases with each single year of age when moving up through the age group. The problem arises in that the enrolled and the out-of-school populations may be expected to have very different patterns of behaviour in the labour market. The first group is only marginally attached to the labour force (through after-school jobs and summer employment), whereas the second group is mainly integrated. Unfortunately, existing data do not permit us to separate the participation rates.

In planning this study, it was hoped that "activity status" information taken from the Labour Force Survey

could be used as proxies for the enrolled and out-of-school population. Questions on "activity status" are used to classify the population into certain broad categories, chief of which are "worked", "looked for work", "had a job but not at work", "kept house", "went to school" and "retired".⁴ Respondents may check two categories: one as the major activity of the week and the other as secondary. The category "going to school", therefore, would not itself supply a clear count of persons attending regular day-time school; it includes those taking night courses, single courses and even non-formal studies such as hobbies or self-improvement. To represent the enrolled population in the labour force, the most hopeful approach seemed to be to take those reporting "going to school" as their major activity and "employed" or "looking for work" as their secondary activity. (They have been classified to the labour force on the basis of the secondary activity.) A test was run using data for March 1970. This showed that 93% of those reporting "going to school" as major activity had worked less than 25 hours and only 2% had worked 35 hours or more, which gave strong support to the hypothesis. However, in the opposite case of persons reporting "worked" as major activity and "going to school" as secondary, a surprising 33% reported working less than 35 hours. In other words, a strong dichotomy was found in only one of the two cases.

Failing to find adequate proxies, we were forced to use the overall participation rates covering all persons in the age group. It should be borne in mind that these rates are in fact an amalgamation of the participation rates of two very different subgroups, namely the enrolled and the out-of-school populations.⁵

* Manpower Research and Development Section, Labour Division.

¹ The unemployment rates of persons 14 - 19 years of age were 16.4% in 1961 and 15% in 1970, and those 20 - 24 years of age were 11.8% and 10.5%, while the overall unemployment rates in these same two years were respectively 7.1% and 5.9%.

² The discouraged worker hypothesis was first described by Paul H. Douglas in *Real Wages in the U.S., 1890 - 1926* (Cambridge, Massachusetts: Kelley Publishing Co., 1930), pp. 439 - 41. The conflicting additional worker hypothesis was first described by W.S. Woytinsky in *Additional Workers and the Volume of Unemployment in the Depression*, Committee of Social Security, Social Science Research Council (Washington: 1940). More recent analyses of these two hypotheses come from: C.D. Long, *The Labour Force under Changing Income and Employment* (Princeton: Princeton University Press, 1958); Robert A. Gordon and Margaret S. Gordon (eds.), *Prosperity and Unemployment* (New York: Wiley and Sons Co., Ltd., 1966); Alfred Tella, "The Relation of Labour Force to Employment", *Industrial and Labor Relations Review*, XVII, No. 3 (April 1964); William G. Bowen and T. Aldrich Finigan, *The Economics of Labor Force Participation* (Princeton: Princeton University Press, 1969).

³ *The Labour Force*, Statistics Canada (Catalogue 71-001, Monthly) (Ottawa: Information Canada), Table 11.

⁴ The questions elicit: What was this person's major activity in the reference week? Secondary activity?

⁵ In April 1971, a special survey was carried out to gather more information on this aspect.

II. Youth Participation Rates, 1953 - 70

As may be seen in Chart 1, the participation rates of the 14-24 age group have shown a very strong annual pattern, characterized by three phases, which repeated itself year after year. This pattern is mainly institutional, though also reflecting other seasonal factors. The peak occurs in May, June, July or August, when a large part of the enrolled population is out of school and either working or looking for work. Perhaps also in these summer months high participation is reinforced by re-entry from the out-of-school population that had withdrawn from the labour force with winter unemployment. This hypothesis of withdrawal is supported by the fact that youth participation rates in the January to April period are consistently lower than in September to December of the preceding year. From an institutional point of view we would expect the opposite, since some part of the September enrolment would normally drop out of school as the months pass, which would cause the youth participation rate to rise (the out-of-school population is known to have a higher participation rate than the enrolled population). Thus, the lower participation rates observed in the period January to April may be taken as a first indication that youth participation rates did respond to labour market conditions.

The Long-term Trend

As shown in Chart 1, the participation rates of the age group as a whole have been remarkably stable through time; the troughs and peaks varied within 8 and 5 percentage points respectively. However, this stability through time is the result of a compensating effect between the downward trend in male participation rates and a rising trend for females. This may be seen in Chart 2, which also reveals differences in the pattern and levels of participation between the younger portion of the age group 14-19 years and the older portion 20-24 years.

To facilitate the reading of movements over so long a period, we constructed indices of four-month averages with 1953 as a base.⁶ Since these averages represent the three annual phases, we are now able to summarize the movements over the 17-year period with only three observations per year. Chart 3 presents the indices for the age group 20-24 years, subdivided to show males, females, and both sexes together. Chart 4 covers the age group 14-19 years of age.

Males 20-24 Years

The index depicted in Chart 3a is characterized by a "constant" and slightly downward trend in the peaks, and by a more pronounced downward trend in the

troughs. The result is that the gap between the troughs and peaks has been widening through the period.

These three features can all be explained in terms of the rise in enrolment rates over the period under review.⁷ Higher enrolment would obviously lower the level of participation in the winter months — although not by the same amount as enrolment increased, since many students would hold part-time jobs or look for work. Higher enrolment should have had relatively little effect on summer participation except to the extent that schools used the trimester system and that students regarded the summer months as an institutional holiday.

One can only speculate whether the downward movement in summer participation, which seems more marked in recent years, could be attributed to economic conditions. It is evident that absence of employment opportunities could keep students out of the labour force in the summer months, although one would also expect that this age group would be less affected than younger males who tend to be less acceptable to employers. The more plausible explanation for declining summer participation in the 20-24 age group is the very large increase in post-secondary enrolment in recent years.⁸

Apart from the trends described, the index for this particular group exhibits great stability over the 17-year period. Indeed, with so little divergence one might suppose that economic conditions did not vary between 1953 and 1970. But the group is not, after all, predominantly made up of secondary workers. The large majority of males 20-24 years have permanently left school and their attachment to the labour force is therefore similar to that of males 25-44 years, even if the attachment to a particular job is lower.

Females 20-24 Years

Chart 3b bears little resemblance to the one just examined for males in the same age group. Through most of the period, peaks and troughs had no regularity and with the enormous upsurge in female participation in the mid-sixties they were lost altogether. However, from 1966 a pattern approaching that of males began to emerge and the correspondence has increased since. In 1970 we can observe for the first time a peak which was lower than that of the preceding year, very much as in Chart 3a.

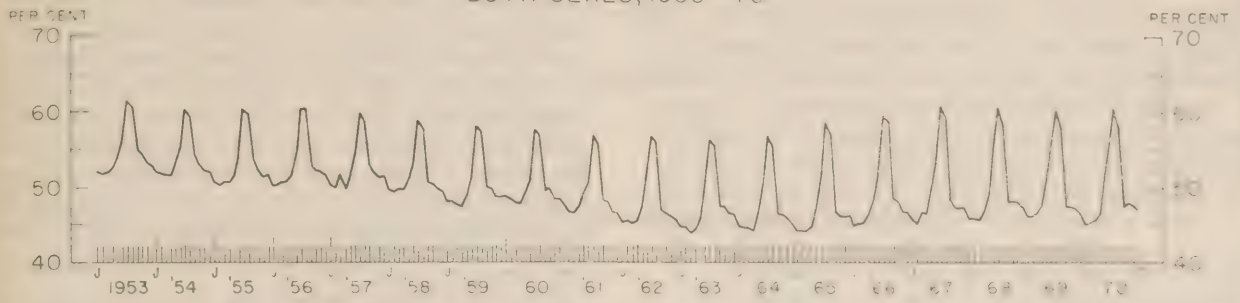
The general outline of the index is that of two plateaus joined by a steep step. While the latter will be viewed as part of the general movement of women into

⁶ The calendar year has been divided into three phases of 4 months duration. That is, the first phase runs from January to April, the second phase from May to August, and the third from September to December. Normally the year is divided into quarters for statistical manipulation, but, to represent the two terms of the school year, four-month averages seemed more representative.

⁷ Census statistics show that the proportion of 20-24 year-old males with some regular daytime attendance at formal school or university rose from 6.4% in 1951 to 11.3% in 1961. A Labour Force Survey estimate showed 22.9% of the same age group as full-time students in March 1970.

⁸ Between 1951 and 1961, the average annual increase in enrolment rates for males in this age group was .445; the corresponding figure for the years 1961 to 1970 was 1.16.

MONTHLY PARTICIPATION RATES, 14-24 YEARS OF AGE,
BOTH SEXES, 1953-70

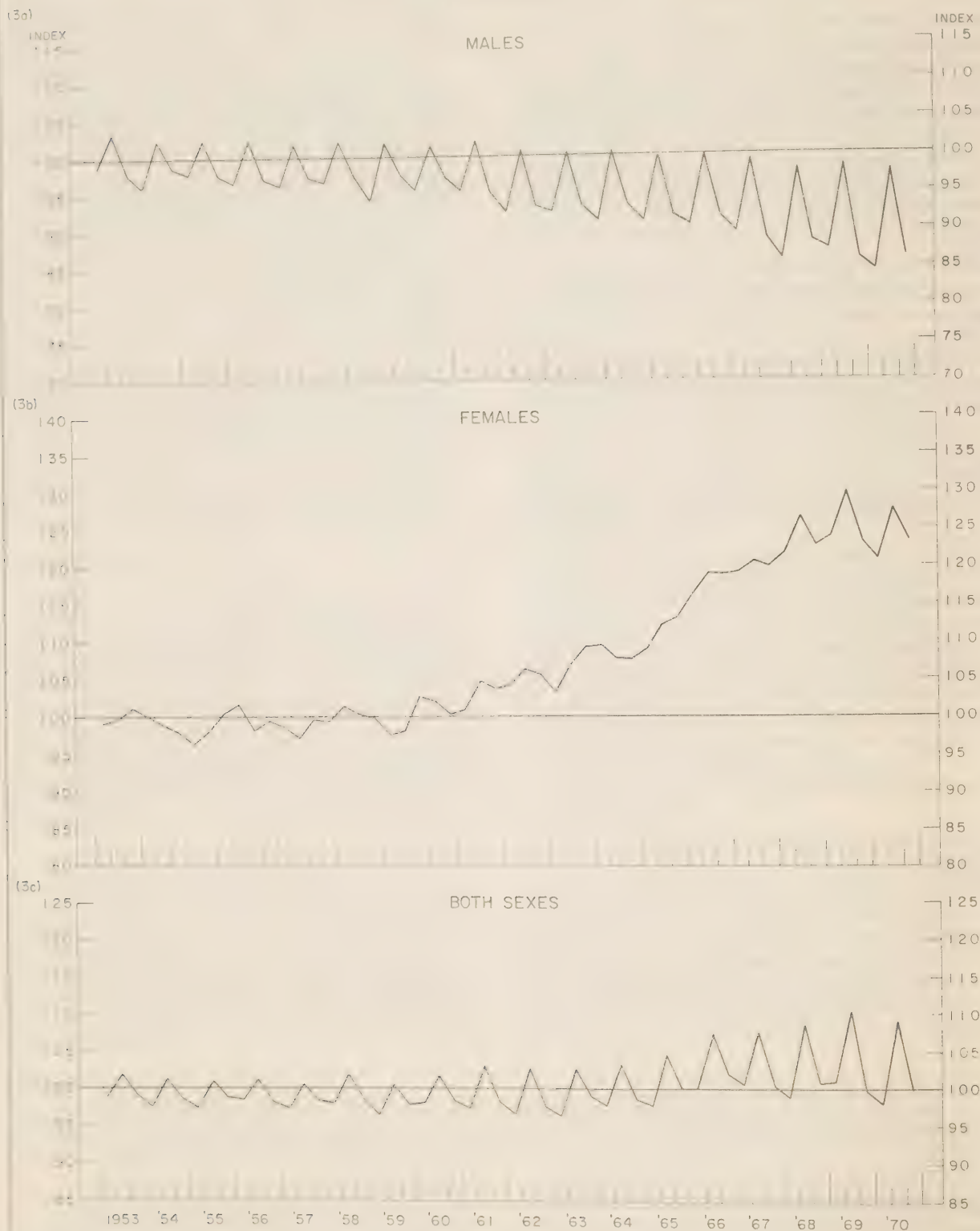


MONTHLY PARTICIPATION RATE BY AGE AND SEX, 1953-70



CHART - 3

FOUR-MONTH-AVERAGE INDICES OF PARTICIPATION RATES, 20-24 YEARS OF AGE, 1953-70
(1953=100)



the labour force, whatever the reasons, it is worth observing that the rise through the early sixties coincided with improving economic conditions, and the acceleration in the mid-sixties with very low levels of unemployment. This suggests that, in addition to changing attitudes of women towards work and of society towards female employment, the market itself may have exerted a pulling influence. Also, from the fact that the higher level of participation has been maintained, one might argue that once in the labour force a taste or attachment was acquired so that a tendency to remain in the labour force persisted even when the job opportunities that had the pulling effect became less plentiful.

Another point worth mentioning is the fact that not until 1970 did the enrolment rate of females in the 20 - 24 years group reach the level attained by their male counterpart ten years earlier.⁹ This was also the year, previously noted, when the pattern in participation rates became similar to the males'.

Even with similar enrolment ratios, the oscillations in the female participation index are not as sharply accentuated as in the male index, probably because the male and female patterns in this age group are influenced by differences in the behaviour of the out-of-school population. It is noteworthy that whereas only 30% of the males in the age group were classified as married in the 1961 Census, the corresponding percentage for females was 59.5. The labour force behaviour of young married women is heavily influenced by the presence of pre-school children, so that entries or withdrawals through the year depend less on the seasonal factors affecting male participants, and more on such factors as changes in child-care status, ability to make child-care arrangements and the like.¹⁰ Still other differences would flow from the differences in occupational distribution. Compared to men in the same age group, the women are more concentrated in office and service industries and would be somewhat less prone to seasonal changes in employment.

Males 14 - 19 Years

The monthly pattern is given in Chart 2, showing sharp (and regular) peaks in a single month, July, and lowest points occurring in January, February or March. Turning to Chart 4a, which gives the indices of participation rates, we see a pattern not unlike that of the older males examined above. Again the trend to lower partici-

pation is noticeable, as is the widening gap between the peaks and the troughs. Both features can be explained in terms of enrolment rates.¹¹

The more interesting features of this index include the variations about the trend of the summer months (peaks). These variations do not exist for older males and seem to reflect a movement similar to that of a business cycle, suggesting that the participation rates of teenage males in the summer months have been influenced by economic conditions. This possibility will be examined in Section III.

Participation rates in the winter months also reveal some variation but the pattern has been more stable than the summer one. Indeed, the upsurge in participation rates of the summer months since 1964 has been nearly non-existent in the winter months.

Females 14 - 19 Years

Although similar to males of the same age in the regular peak which occurs in July (Chart 2), the younger females have had a different pattern over time - in particular, the absence of a downward trend in the participation rate in the peak phase (Chart 4b). Even without a downward trend, participation rates of females remain at a much lower level (Chart 2). Some downward movement has occurred in the trough phase but not to the same extent as in the case of teenage males.

Another point of interest in Chart 4b is that the level of participation in the period January to April represents a fairly sharp decline from the preceding four-month average (September to December). While the participation rates of both male groups also declined as the winter advanced, the amount of the decline for teenage females has been much more pronounced. It will also be noted that the swing of the index has become more regular since the middle sixties.

The index of the females 14 - 19 years is the most difficult to interpret. There is a regular annual pattern to it, which doubtless reflects the fact that the enrolled population accounted for a high percentage of the age group.¹² But why should the participation rates of teenage females have been so much lower than those for teenage males, especially in the summer months? The enrolment ratios were similar, and although more of the females were married the latter were a mere 8% of the age group. Were teenage females less interested in summer employment? Was it harder for them to find a job, or were they required to stay at home and help? Such questions cannot be answered from the data available at this time but the heavy withdrawal from the labour force in the months January to April might indicate that this group was the first affected by an increase in unemployment.

⁹ The proportion of females in this age group with some regular daytime attendance at formal schools or universities increased from 3.3% in 1951 to 4.6% in 1961. The estimate for full-time students in March 1970 was 10.3%.

¹⁰ See: B.G. Spencer and D.C. Featherstone, "Married Female Labour Force Participation: A Micro Study", *Special Labour Force Studies*, Series B, No. 4, Statistics Canada (Catalogue 71-516 Occasional) (Ottawa: Information Canada, 1971); J.D. Allingham, "Women Who Work: Part 1", *Special Labour Force Studies*, No. 5, Statistics Canada (Catalogue 71-509 Occasional) (Ottawa: Information Canada, 1967); J.D. Allingham and B.G. Spencer, "Women Who Work: Part 2", *Special Labour Force Studies*, Series B, No. 2, Statistics Canada (Catalogue 71-514 Occasional) (Ottawa: Information Canada, 1968); Sylvia Ostry, "The Female Worker in Canada", *1961 Census Monograph Programme*, Statistics Canada (Ottawa: Information Canada, 1968).

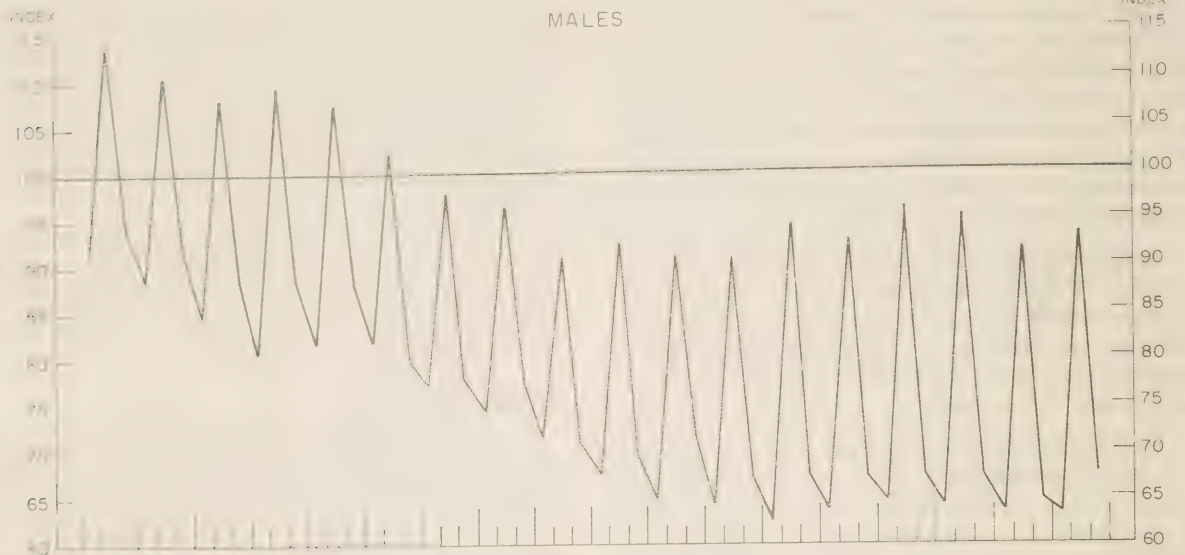
¹¹ Percentages of age group with some regular daytime attendance at formal schools or university: 1951 - 49.7; 1961 - 68.1; Percentage of full-time students in March 1970: 83.0.

¹² Enrolment ratios of females 14 - 19 years did not differ greatly from those of males in the same age group: 1951 - 48.9%; 1961 - 63.6%; 1970 - 79.3%.

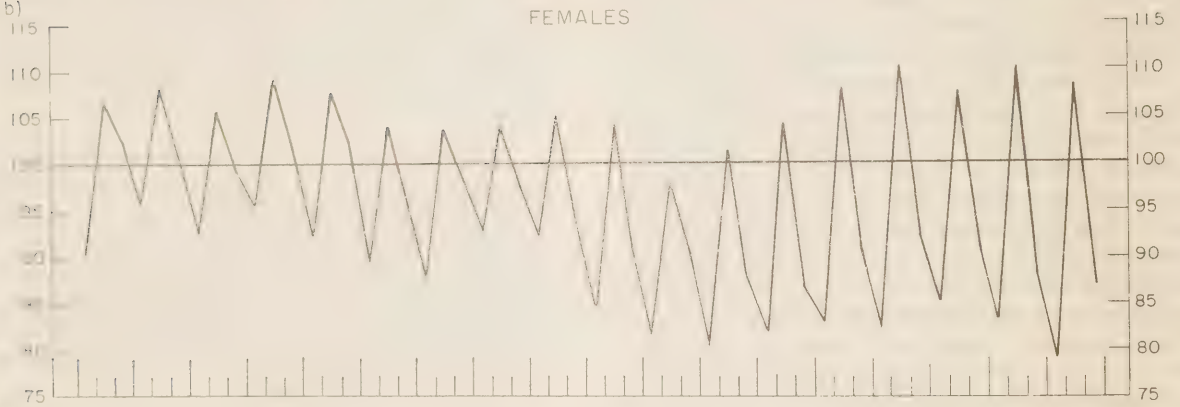
CHART - 4

FOUR-MONTH-AVERAGE INDICES OF PARTICIPATION RATES, 14-19 YEARS OF AGE, 1953-70
(1953=100)

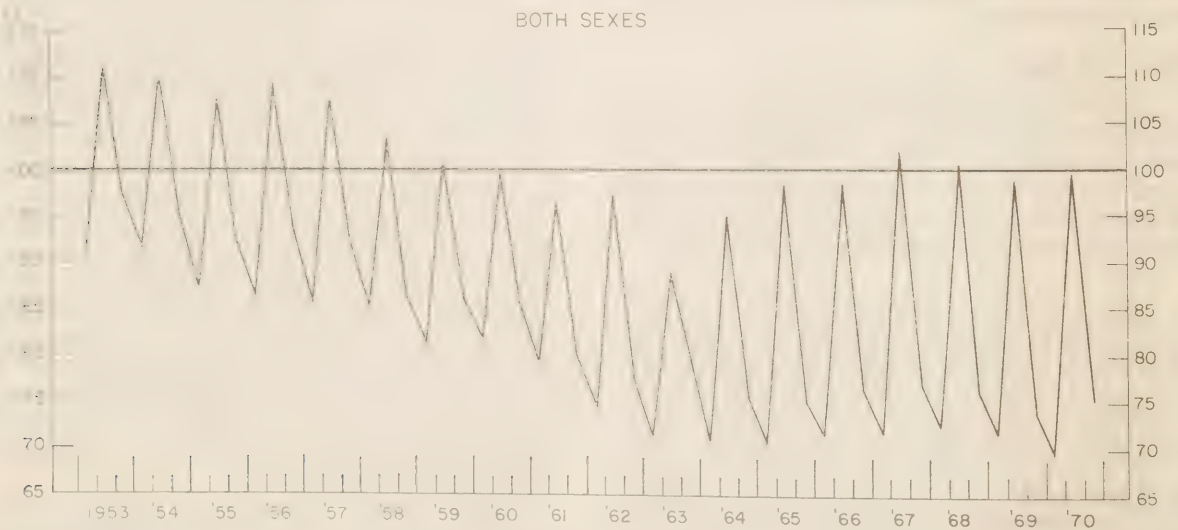
(4a)



(4b)



(4c)



III. Relationship Between the Demand for Labour and the Participation of Youth in the Labour Force

The analysis to follow is based on the assumption that a relationship exists between the behaviour of the labour force and changes in the demand for labour. Thus, when unemployment increases, a secondary worker will enter the labour force in order to supplement the family income (the additional worker effect), or, alternatively, he (she) will withdraw from (fail to enter) the labour force (the discouraged worker effect). In reality, different persons will react differently to the same situation; but one of the two hypotheses will predominate at the aggregate level or, if the two have similar impact, they will nullify each other. The purpose of this section is to measure the impact of a change in the unemployment rate on the participation of young persons.

Specification of the Model

The basic model¹³ can be written as:

$$PR = a + bT.D_1 + cT.D_2 + dT.D_3 + eU_0 + fU_{-1} + gU_{-2} + hU_{-3}$$

¹³ I would like to acknowledge the considerable assistance of Mr. John Lewis (Special Advisor, Regional and Manpower Research Staff, Statistics Canada) who not only formulated this model but also set up and ran the regressions. Responsibility for any errors in the interpretation of the results remains with the author.

where:

PR = the four-month average participation rate for the population sub-group under study;

T = time in years (1959 = -1, 1960 = 0, 1961 = +1, etc.);

a = the constant term;

$D_i = 1$ in the i th phase,¹⁴

= 0 otherwise;

U_0 = the present phase average unemployment rate of primary workers (males age 25 - 44);

U_{-1} , U_{-2} , U_{-3} = the four-month average unemployment rate of primary workers lagged 1, 2, and 3 phases respectively, e.g., U_{-3} was the four-month average unemployment rate one year earlier.

The coefficients of the above model were estimated using an ordinary least-squares stepwise multiple regression program.

¹⁴ See footnote 15 page 16.

CHART—5



Definition of the Variables

The participation rates were calculated as four-month averages. As previously noted, the annual pattern imposed by schooling closely matches the three four-month periods of the calendar year. Therefore, instead of one overall measure of the time trend,¹⁵ we have three, each one corresponding to one phase of the annual pattern (January to April, the second term of the school year; May to August, the summer months; and September to December, the first term of the school year).

As a proxy for the demand for labour, the model uses the unemployment rate of males 25 - 44 years. This is regarded as a better proxy than the overall unemployment rate because of the highly stable attachment of this group to the labour force. In addition, by using the unemployment rate of an age group which is not under study itself, we avoided the possibility of spurious correlation between the unemployment and participation rates of the same group.¹⁶

The period selected for examination, 1953 - 70, exhibits a wide variety of economic conditions. It spans the latter portion of one economic cycle, the complete cycle between 1956 and 1966 and with the rising unemployment of recent years the start of a third. Unfortunately, although the unemployment rate has moved extensively over time, it has not returned to the very low levels of the early post-war years; this makes it impossible to test the behaviour of participation rates over a full spectrum.

Analysis of the Regression Results

The regression results are presented in Table 1 below. The participation rates (the dependent variable) and the unemployment rates (independent variable) were all entered as percentages.

To illustrate the interpretation of the regression results, the case of males 14 - 19 years will be considered. This group's average participation rate in 1960 was 47.6%. Over the 17-year period, the rate declined an

estimated 0.98% per year in the first phase (January to April), while during the summer months the estimated rate of decline was only 0.4%. The symmetry of the impact of school enrolment over the year is evident in the fact that the decline in participation in the third or autumn phase was an estimated 0.97% per year.

Looking for the effect of economic conditions, we found that the unemployment rate in the same period of the preceding year had the strongest influence on participation, and it was negative. More precisely, an increase of 1% in the unemployment rate in the corresponding phase a year earlier brought about an estimated 1% decline in the participation rate. The current rate of unemployment was not significant. But the unemployment rate of the preceding four months had a discernible effect — in this case, a 1% increase in unemployment being associated with an increase in the participation rate of 0.5%. When the unemployment rate was lagged two phases, however, we found instead a small decrease in participation. Interpretation of these findings will be discussed later in the subsection on unemployment variables.

Constant term — The constant term, which could be thought of as an approximation of the 1960 annual average participation rate for each group, was as expected: highest for males 20 - 24 years and lowest for females 14 - 19 years. The constant for females 20 - 24 years was slightly higher than that for males 14 - 19 years. This was a change from their relative ranking at the beginning of the period when the younger male group had a higher annual participation rate than did the older group of females (see Chart 2).

Time-trend variables — In Section II, it was hypothesized that a given increase in the enrolment rate would not cause an equal decrease in participation rates during the school months, and that the participation rates in the summer months would be even less affected. It would be of interest, therefore, to compare the time-trend coefficients from Table 1 with the increases in enrolment rates. This has been done in Table 2 below.

Except for the older females, who had a substantially different pattern, the expectations were largely borne out by the data. For males 14 - 19 years, the annual average increase in enrolment was 1.67% while the average annual rate of decline in the two "school" phases was .983% and .973%, respectively. The decline carried over into the summer months (Phase 2) but it was a much smaller change (-.354% per year).

In the case of males 20 - 24 years, the .83 average annual change in enrolment was associated with average annual changes in participation rates of .76 and .73 in school months. The closer association between the increase in the enrolment rate and the decrease in participation rates of males 20 - 24 years could be due

¹⁵ This is a departure from the standard method of time series analysis. The institutional factor of school enrolment is responsible to a very large extent for both the trend and the annual pattern of participation rates. Increases in school enrolment affect different parts of the year differently (see Chart 6 in the Appendix). In order to study this seasonal phenomenon, three time-trends representing the three different school phases of the year were calculated. It should be mentioned that the four-months averaging has the disadvantage of hiding some of the minor seasonal variations. However, in the present context, this is not considered a serious drawback since our main interest lies in the relationship between participation rates and unemployment in the three phases.

¹⁶ The unemployment rate is defined as the ratio of the unemployed over the sum of the employed plus the unemployed. The participation rate is the proportion of a given population which is in the labour force (i.e., the sum of the employed and unemployed). If, for instance, only the unemployed leave the labour force, then both the participation and unemployment rates will decline tautologically.

TABLE 1. Analysis of Participation Rates, 1953-70

Note: All coefficient values appearing below are significant at the .05 level except those marked * which are significant at the .1 level.¹

Variables	Sub-group			
	14-19 years of age		20-24 years of age	
	Male	Female	Male	Female
Constant, $T_0 = 1960$, (a)	47.624	32.426	89.155	52.261
Time-trend variables:				
Jan. to Apr. ($T.D_1$)	- .983	- .403	- .764	.857
May to Aug., ($T.D_2$)	- .354	...	- .181	.923
Sept. to Dec., ($T.D_3$)	- .973	- .294	- .733	.779
Unemployment variables:				
Current rate, (U_0) .....	...	...	...	...
Rate lagged 1 period, (U_{-1}) .....	.487	...	...	- .401
Rate lagged 2 periods, (U_{-2})	- .299*	...	.248	...
Rate lagged 3 periods, (U_{-3})	- .953	- .276	...	- .332
Multiple R^2 .....	.955	.909	.959	.925
Regression F	155.39	156.83	272.02	110.26

¹ These regressions were run using a stepwise method which entered into the equation only those variables possessing a "t" value of 3.0 or greater, i.e., significant at the .1 level. Therefore, when the symbol "..." appears, the variable was not significant at the .1 level.

TABLE 2. Comparison of Changes in Participation and School Enrolment Rates

Age and sex	Average annual change in enrolment rates ¹ 1951-70 ²	Average annual change in participation rates, ³ 1953-70		
		Phase 1 ⁴	Phase 2 ⁴	Phase 3 ⁴
14-19 years:				
Male	+ 1.67	- .983	- .354	- .973
Female	+ 1.52	- .403	...	- .294
20-24 years:				
Male	+ .83	- .764	- .181	- .733
Female	+ .35	+ .857	+ .923	+ .779

¹ Calculated by linear interpolation from observations in 1951 and 1970. Source: 1951 Census and Monthly Labour Force Survey, July 1970.

² It might be of interest to the reader to know that the annual increase in enrolment rate for males 20-24 years was not only 50% of that for males 14-19 years for the period as a whole, but the timing of increase was not the same within the period. The average annual changes were:

for males, 14-19 years, 1.67 between 1951 and 1961, and 1.49 between 1961 and 1970;
for males, 20-24 years, .45 between 1951 and 1961, and 1.16 between 1961 and 1970.

Moreover there is still room for further increment for older males but the annual increase for younger males will necessarily diminish (in 1970, the enrolment rate of the latter was 83% while that of males, 20-24 years, was 22.9%).

The rates for females 14-19 years were, except for a small time lag, very similar to those of males in the same age group. Females 20-24 years still had in 1970 only half the enrolment rate of males in the same age group (10.3% compared with 22.9%) but they are slowly catching up. Their annual increase was 25% of that of males between 1951 and 1961 but half of it between 1961 and 1971. Whether they will eventually reach parity is hard to say.

³ Estimated average annual change: from regression coefficients Table 1.

⁴ Phase 1 covers months January to April; Phase 2, May to August and Phase 3, September to December.

in part to a declining participation rate in the out-of-school population. Also, the propensity of older students to seek work in the school months may be lower than that of high school students due to such factors as the more demanding study program of older students and the unavailability of jobs considered suitable. Perhaps, too, the higher cost of post-secondary education has tended to eliminate young people from lower income strata.

In the summer months (Phase 2) participation rates of males 20 - 24 years declined at a very slow pace (-.18). The larger out-of-school population had the best chance at that time of the year to secure a job and most students in this age group, enrolled in costly post-secondary institutions, sought summer employment or worked. As noted earlier, students in this age group are least affected by poor economic conditions.

Unlike the other three groups studied, females 20 - 24 years exhibited a strong positive time trend in participation in all three phases of the year. While this was matched by the lowest average annual increase in enrolment, one would have expected the enrolment effect to have resulted in a slight decline in the participation rates; evidently this effect was lost under the push for higher participation. The three annual phases had similar coefficients and the summer months' rate was the strongest.¹⁷ This might be due to a carry-over of the effect of enrolment into the summer months (it was less strongly negative) or might indicate that married females preferred to work - or that it was more convenient for them to work - in the summer months.

The unusual secular behaviour of the index of participation of females 14 - 19 (see Chart 4b) was noted in Section II. The participation rate was generally much lower in Phase 1, which corresponds to the second term of schooling, than in Phase 3, which is associated with the first term, and the falling off was much more marked than in the corresponding male group. According to the regression coefficients, the rate of decline in the second term of school (Phase 1) was greater than the rate of decline in the first term (Phase 3) i.e., -.403 and -.294 respectively. Therefore, combining the observations on the relative magnitudes and rates of decline in Phase 1 and Phase 3 participation rates, the disparity between these rates has been increasing during the period under study.

¹⁷ In spite of the statistical significance of these trend coefficients some caution in interpreting their values is in order. As we have seen in Section II (particularly Chart 2) a regular pattern in the females 20 - 24 years participation rate has been apparent only since 1966. Accordingly, the statistical significance of the positive coefficients on time variables may be due more to a consistent upward trend over the years rather than to an actual pattern of the three phases within each year. The symmetry over the year may have arisen from the influence of the past 1966 period, and not due to patterns throughout the 1953 - 70 period.

It should be kept in mind that the time trends represented the whole period and it is worth noting that the gap between participation rates of Phases 1 and 3 for females 14 - 19 years was much wider than that of males in the same age group in both 1957 and 1958 - years of high unemployment. This difference narrowed in 1965 and 1966 when unemployment was low but the female gap widened again with high unemployment in 1970. This would seem to indicate that participation rates of younger females have been more affected by the heavy seasonal unemployment in the months January to April than those of their male counterparts.

By reference to Table 2, it can be seen that the average annual increases in the enrolment of males and females 14 - 19 years were very similar. However, in the months January to April the average annual rate of decline in participation rates has been twice as fast for males as for females (-.983 and -.403 respectively), and in the months September to December it has been more than three times as fast (-.973 and -.294). Therefore, although the absolute value of the male participation rate has been higher than the female rate over the entire 1953 - 70 period, the differential in the rates of decline suggests that the two groups will eventually have similar participation in the labour force.

In Phase 2 (May to August), the time-trend coefficient was insignificant for females 14 - 19 years. This was the only instance where the time-trend variable was not significant. A non-linear time-trend would probably have led to a better fit to the Phase 2 observations and this may well be the reason for the insignificance of the coefficient. Looking at Chart 2, it appears that the summer months' participation rates of this group were sensitive to both higher enrolment and economic conditions. Specifically, the Phase 2 rates were generally declining between 1953 and 1963 (due to increasing enrolment rates and generally deteriorating economic conditions) down to a low in 1963. Thereafter, a push for higher participation similar to that of the older females coincided with the better economic conditions of 1965 and 1966.

Unemployment variables - The unemployment variables were entered into the equations as discrete variables with respect to time. However, conceptually we could hypothesize a continuous response function relating the degree of response of current participation to any given unemployment rate lagged over time. According to the regression results presented in Table 1, such a function would take a different form for each of the four groups examined. However, one common characteristic is apparent and that is the absence of influence of the current unemployment rate.¹⁸ Various explanations are possible: the discouraged worker effect was of the same magnitude as the additional worker

¹⁸ In all four cases the coefficient of the current unemployment variable was found to be insignificant at the .1 level.

effect; more time was required before reacting to a change in employment conditions. The averaging of four-month rates could also be partly responsible.

Beyond this, the four groups must be examined individually and so, beginning with males 14-19, we note that unemployment lagged one phase caused current participation to move in the same direction, while lags of two or three phases (i.e., approximately 8 months to 1 year) corresponded to an inverse movement in current participation. Without a great deal more information we cannot actually define a causal link but it would seem plausible that the inverse relationship between participation and unemployment lagged two or three phases is dependent on the unemployment rate prevailing at the time at which the decision to enroll (and therefore, to some extent, not to participate) was made.

In general, the decision of younger males whether or not to join the labour force appears to be based primarily on their knowledge of economic conditions in similar months a year earlier. It may also be said that a worsening of unemployment has the effect of encouraging some of them to join the labour force in order to supplement the family income.

The behaviour of males 20-24 years is substantially different. According to the final results of the regression, the only significant effect was that a rise in unemployment lagged two periods would incline them to join the labour force. The statistical non-significance of the other coefficients prevented us from either drawing inferences about this particular group or making comparisons with other groups.

However, more interesting indications can be gathered at various stages of the regression operations. When only the time-trends were taken into consideration,¹⁹ all unemployment variables' partial correlation coefficients associated with the unexplained error left in the regression had a positive sign. This would suggest that the reaction of males 20-24 years is always in the nature of an additional worker effect, regardless of time lag considered. Moreover, since the unemployment lagged one period and two periods had the largest and similar strength in their relationship with the errors left to be explained, while the strength of the other unemployment variables was much weaker, this group's reaction is probably at its highest point six months after the change in the unemployment rate has occurred.

In the case of females 20-24 years, although higher unemployment may not have resulted in an actual

decrease in participation rates, the rising trend of participation in the labour force has at times been flattened. This was indicated in the regression by the two significant coefficients being negative. It is worth noting that, unlike the other groups, the coefficient was greatest with unemployment lagged one period. Combining this with the previous discussion regarding the strong positive time-trend in participation, we see that during periods of sharply increasing unemployment the positive trend may have been overwhelmed at short notice by depressed economic conditions.

Unemployment lagged one year (three phases) was the only significant coefficient for females 14-19 years and the relationship between unemployment and participation was negative. Moreover, all the unemployment variables reflected a discouraged worker effect when, at an earlier stage of the regression, only time-trend variables were taken into consideration.²⁰ The behaviour of females in this age group seemed to be partly analogous to the males of that age group and partly to the females 20-24 years. However, it is far from being a clear-cut case; cross-classification analysis is needed to ascertain how this group behaved.

Conclusion

This paper began with the observation that unemployment rates in 1970 were approximately 5 percentage points above the overall rate for the 20-24 age group, and almost 10 percentage points higher for the 14-19 age group. Because so many in these age groups are secondary workers, the possibility arises that the amount of unemployment experienced by young persons is still further augmented during economic recession by hidden unemployment — persons who would look for work if labour market conditions were more favourable but excluded from measured unemployment because they were not actively seeking employment. While the results of this investigation are not conclusive, there are certain indications that this is so.

The chief reservation to be borne in mind is that the analysis was based on the overall participation rates for four age-sex groups, with no separation between the enrolled and out-of-school populations. Had such a breakdown been possible, the picture which emerged might have been quite different.

The picture we do have may be roughly summarized, beginning with the marked decline in the participation rate of both male groups since the early fifties. This is obviously related to a trend to more and longer schooling but, at least for the younger group, the higher

¹⁹ The equation at that stage of the regression was: $PR = 90.34 - .800 T.D_1 - .211 T.D_2 - .708 T.D_3$; and partial correlation coefficients of the unemployment variables were: $U_0 = .096$; $U_{-1} = .362$; $U_{-2} = .413$; $U_{-3} = .190$; with partial F values of .43, 6.93, 9.48 and 1.73 respectively.

²⁰ The equation was: $PR = 32.21 - .412 T.D_1 + 0.070 T.D_2 - 0.241 T.D_3$; and the partial correlation coefficients of the unemployment variables were: $U_0 = -.226$; $U_{-1} = -.210$; $U_{-2} = -.070$; $U_{-3} = .422$.

enrolment does not entirely explain the behaviour of the participation rate. The regression results clearly indicate that an increase in the unemployment rate has an overall discouraged worker effect for males under 20 years.

The older males (20 - 24) have a pattern similar to that of primary workers which, of course, many of them are. The only measurable impact of an increase in the unemployment rate is positive.

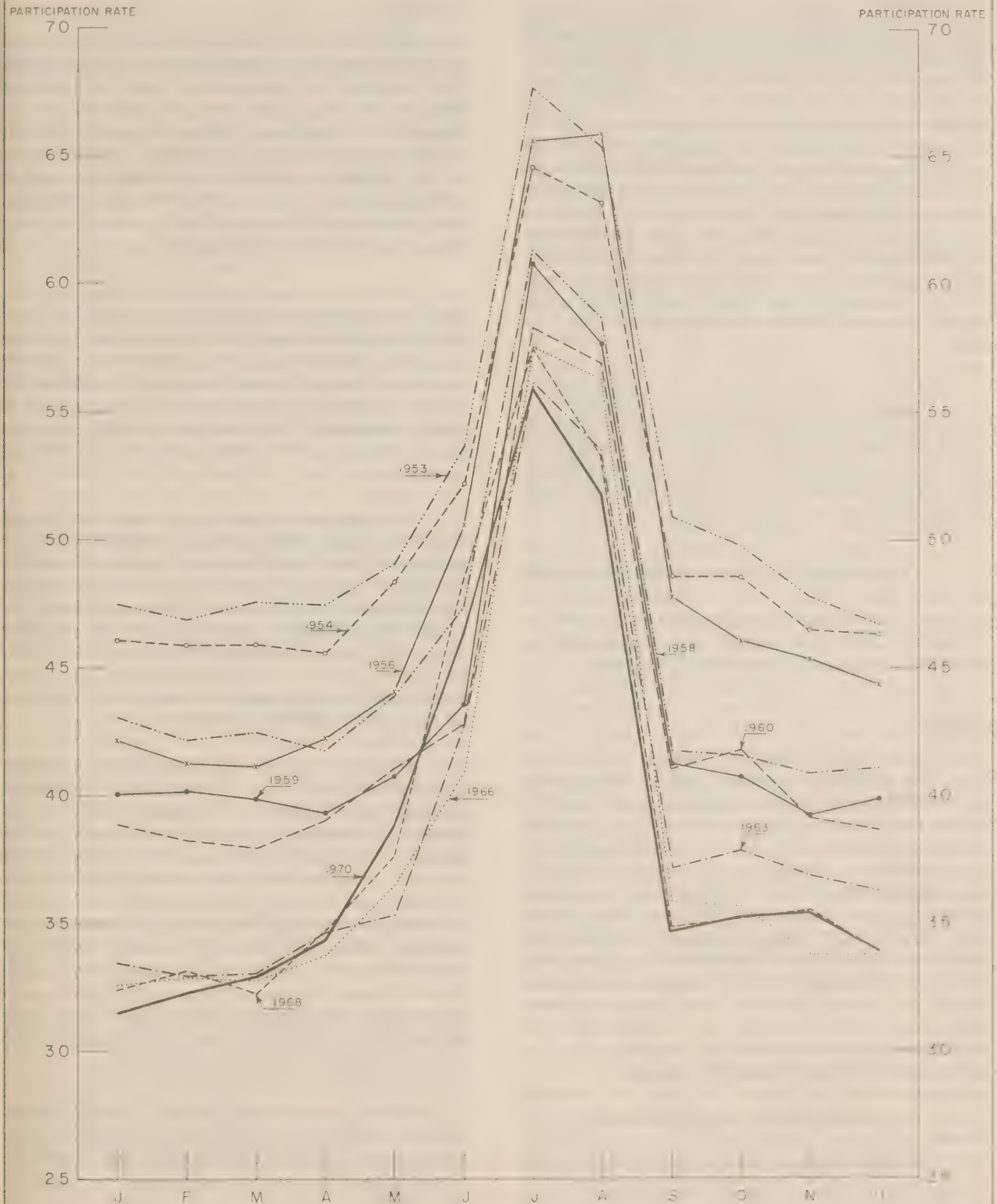
The labour force participation of females 20 - 24 years moved upward at a very rapid rate through the sixties. According to the regression results, this upward movement has been dampened when economic conditions deteriorated, but what is still more interesting is the emergence of a "male" pattern in the few last years for which observations are available. Tentatively, it would appear that this "male" pattern is due to the behaviour of the enrolled females who are moving in and out of the labour force through the year in much the same way as their male counterparts. The larger, out-of-school female group appears to differ basically in behaviour from the out-of-school males, having, to a large extent, adopted the role of secondary workers - their

labour force behaviour heavily influenced by their child-care status. Therefore, even if females in their early twenties should eventually enroll in the same proportion as their male counterparts, their overall labour force behaviour would remain different from that of males until it becomes possible for more females no longer attending school to have a more permanent attachment to the labour force.

Unlike the pattern for young males 14 - 19 years whose enrolment ratios were similar, female participation declined in the school months only, and the trend was not as marked. Towards the end of the period, the participation rates of females 14 - 19 years displayed a strong tendency to become similar to participation rates of males in the same age group, but remained at a much lower level, particularly in the summer months. Young females seem to be the group most affected by high and growing levels of unemployment, apparently least able to compete in the job market and the first influenced by poor economic conditions. This could be due in part to the narrow range of jobs open to them and the strong competition school-girls receive from older females re-entering the labour market.

CHART - A.1

PARTICIPATION RATES, MALES 14-19, FOR SELECTED YEARS



THE JOB VACANCY SURVEY AND LABOUR MARKET ANALYSIS

Dave Gower*

The Job Vacancy Survey (JVS) was originally conceived and designed primarily to provide information necessary to the formulation of policy and the guidance of programs in the Department of Manpower and Immigration. The planning of manpower training programs, for example, required up-to-date and occupationally-specific information on employers' demand for labour; placement and counselling services in the local offices could be expected to function more effectively given the same background information. In addition, of course, it was recognized that the vacancy data would be welcomed by other labour market analysts. The absence of such data has long been regarded as a basic gap in Canadian labour market statistics, previous development being heavily concentrated on the supply side.

The object of this article is to inform labour market analysts about job vacancy data, publication of which is expected to begin in 1971. To this end the definitions used to collect the data are explained, and some of the conceptual and quality limitations which analysts may encounter are pointed out.

An explanation of the structure of the survey will be given first. There follows a description of the vacancy measure with the framework of the comparison of labour supply and demand and, to conclude, a comment on some of its potential analytical uses.

The Survey

The survey is conducted twice a month, the periodicity chosen for operational reasons. The shortest period for which data release is contemplated, however, will be the month, calculated by averaging two survey occasions. The survey has two phases of enumeration. First, there is a mail-out of approximately 35,000 questionnaires. Every sector of the economy is included except domestic service and agriculture. The sampling rates vary widely between different industrial and employment size groups. The mail-out is followed by an interview of about 10% of the reporting units on the mailing list for each occasion.¹ This interview has two main purposes: first, it checks, on a sample basis, the reporting of those who replied by mail and second, it gathers data from those who failed to reply.

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¹ Readers who wish a more detailed description of the way estimates are derived from the two phases of enumeration are referred to S. Ostry and A. Sunter, "Definitional and Design Aspects of the Canadian Job Vacancy Survey", *The Journal of the American Statistical Association*, LXV, No. 331 (September 1970), pp. 1059 - 70.

The Data

The measure of demand as produced by the Job Vacancy Survey is first and foremost a stock measure. This statistic is obviously distinct from a flow measure such as monthly hirings formerly produced by the Hirings and Separations Survey conducted by the Unemployment Insurance Commission.² This difference in the reference period and other restrictions used in defining a job vacancy (as explained below) mean that only a fraction of hirings — evidently a small one — appear in the Job Vacancy Survey data.

As a stock measure, the vacancy data are conceptually comparable to the measure of unemployment. A hope of labour market analysts has been that vacancies and unemployment could be combined to produce a measure of excess demand (or supply) for labour — a measure which plays a vital role in theories of labour market behaviour. There are many pitfalls, however, on the road between the theoretical need and the actual measurement.

The measure of total labour supply is usually considered to be the number of employed plus the number of unemployed, where the unemployed include both those looking for work and the "discouraged workers", that is, those who would have looked for work if they thought it was available. (From the point of view of the actual dynamics of supply and demand in the labour market, it is sometimes valid to remove the employed and consider only the unemployed, depending on the sort of study being performed.)

What, however, is the equivalent statistical meaning of demand for labour? The definition adopted in planning the Canadian Job Vacancy Survey is that demand for labour is measured by employment plus the number of positions which, on a given reference day, are reported by employers as being vacant and for which recruiting activities have been undertaken. In practical terms that are meaningful to an employer answering the question, what symbolizes a job vacancy? An empty desk? Yes, in some cases. An idle machine? Yes, again in some cases. However, in many cases a job vacancy is ephemeral — a feeling by the employer that he could use another employee if he could find one at the right wage and with the right qualifications.

Here we come across the first, and most fundamental, impediment to a conceptual link between supply and demand for labour. A person is a real, identifiable unit (although his status as unemployed or not in the

² This survey was discontinued shortly after its transfer to the Department of Manpower and Immigration in 1966.

labour force may sometimes be difficult to measure). A general concept of a vacancy, however, may be a hypothetical thing: a statement of intent by an employer which may or may not have any concrete reality.

One of the ways to overcome the difficulty is to measure only those vacancies reported to a central manpower agency. The act of reporting serves as a test of reality of the vacancy. (It does not, of course, by itself test whether or not a vacancy is based on reasonable expectations vis-à-vis wage and qualifications.) In Canada, however, such administrative data are not considered adequate to provide a comprehensive measure, due to partial coverage of employers and a number of counting problems connected with the fact that the data are a by-product of an administrative operation not specifically designed to produce statistics.³

In turning to a survey to measure vacancies, it was necessary to devise means to "harden" the reporting by testing the employer's specific knowledge of his vacancies, and by ascertaining what specific recruiting activity, if any, had been undertaken. For a vacancy to be acceptable, therefore, the employer must be able to give a precise (i.e., codeable) description of the type of work to be done,⁴ the exact number of employees required, the minimum starting rate of pay and the starting date. To eliminate vague and speculative vacancies, the employer is asked to report only those vacancies for which he actively recruited in the four weeks prior to the reference date. Also, to ensure that only vacancies of some real impact in the labour market are reported, the employer is asked to report only vacancies that are available to persons outside his firm.

To tighten the definition still further, it was decided to exclude vacancies which had been vacant for less than one day. Since a person is considered unemployed only if he has been without work for an entire reference week (and seeking work at some time during the week), this difference in reference periods detracts further from the comparison of supply and demand. Indications are, however, that the discrepancy is probably not too significant in percentage terms.

It is interesting that the U.S. vacancy survey has not insisted that a job be vacant for an entire reference day, although most of the remaining requirements are

similar to Canada's. Omission of the so-called "instant-fills" would be expected to lower the Canadian vacancy levels relative to the American but there are some operational factors — e.g. no interview collection in the U.S., and "end-of-month" reporting — which probably have the opposite effect. The small amount of comparative data presently available indicates a rather close correspondence in the results of the Canadian and American surveys.

It was decided to make no attempt to remove vacancies which were not reasonable with regard to pay and desired qualifications, although starting wage data are gathered and some analysis of these data should be possible. This decision was based on the fact that no such edit is applied to the definition of unemployment. Of course, any such edits would be extremely difficult to apply in practice.

The analyst must judge to what degree the process of "hardening" has succeeded in making the Job Vacancy Survey data a useful measurement of the unsatisfied demand for labour. There seems little doubt that over time they will produce a useful index of demand, as well as a measure of the geographical, occupational and industrial nature of this demand. But the use of JVS vacancy data as a cardinal measure, in conjunction with unemployment, to calculate excess demand is a much more complex conceptual problem, being to some extent an "apples and oranges" situation because of the differences in definitions.

Because of the variety of hiring patterns found in different sectors of the economy, the Job Vacancy Survey is producing data for vacancies in which successful candidates for employment can start immediately ("current vacancies") and also those where candidates are to start at some specified future date ("future starting date (FSD) vacancies"). Obviously, current vacancies are a less ambiguous indication of "hard" demand. The FSD vacancies undoubtedly represent an influence on the labour market, but it is not certain whether a change in their levels would represent a change in demand or, alternatively, a change in the recruiting time horizon of employers. Whether an analyst would use current vacancies only, or a sum of current and FSD vacancies to represent labour demand, he should remember that without FSD vacancies certain components, such as the demand for teachers, would be omitted.⁵

In order to add an additional qualitative aspect to the data, the Job Vacancy Survey divides current vacancies into those for full-time and those for part-time jobs — vacancies which have different types and degrees of impact in the labour market. In addition, current vacancies are further divided to distinguish those which

³ Other countries, such as France and Japan, maintain administrative series on vacancies which find wide internal use. There appears, however, to be more extensive employer use of the central manpower service within these countries. For a more complete description of foreign data series, see *The Measurement and Interpretation of Job Vacancies*, a Conference Report of the National Bureau of Economic Research (New York: Columbia University Press, 1966). This book can be considered as a basic reader in the area of measuring demand for labour.

⁴ At date of writing the survey is being coded to both the *Dictionary of Occupational Titles* and the new *Canadian Classification and Dictionary of Occupations*. Later, when the Department of Manpower and Immigration has switched its internal data series to the CCDO, it is expected that double coding will no longer be necessary.

⁵ For a number of reasons, FSD data tend to have higher variance than current data at similar cell sizes, and consequently their interpretation and use will have to be restricted accordingly.

have been vacant for one month or more before the reference date. There is a temptation to describe the one-month vacancies as "shortage" vacancies, that is, those not caused by friction in the labour market but representing longer-term shortages of particular types of workers. This is a possibility which analysts will wish to investigate, although there is certainly nothing magic about one month.

Uses

Once the user community acquires sufficient familiarity with the JVS data, it is anticipated that many analytic uses will be found. Of course, uses will be limited until such time as a good time-series, covering several cycles, becomes available and allows an increase in knowledge of the quality and meaning of the data. When the first tabulations arrived, concern was expressed over the unexpectedly low levels of job vacancies. However, with the accumulation of experience in observing the data, it has been realized that they correspond fairly closely with the American levels. In the opinion of the author, the current levels are reasonable in the light of the existing economic conditions.

One important potential use that should be investigated closely is the use of a vacancy series as a cyclical variable. There is strong evidence that vacancy rates have large fluctuations during a cycle: the American vacancy rates dropped 50% from summer 1969 to summer 1970, while unemployment rose by a somewhat smaller relative magnitude. There is also a reasonable suspicion that vacancies may be a leading cyclical indicator.⁶ And

⁶ Theoretically, this would follow if one hypothesizes that the rate of change of unemployment with respect to time has a lagged inverse relationship to the level of vacancies. In addition, there is evidence that the U.S. help-wanted index, which is loosely analogous to a job vacancy series, is a leading indicator (see P. Bloch, "The Help-Wanted Index Points Downward", *The Conference Board Record*, NICB, (Spring, 1970), pp. 46-8.

vacancy data should certainly aid in separating out the "structural" and "demand" components of cycles.

In more specific terms, the introduction of a measurement of the demand for labour should be of considerable use in the Philips - Lipsey analysis of wage changes, especially in such lines as are being developed by Kaliski and Hansen,⁷ both of whom refer in their publications to the need for demand data. This addition would entail the substitution of data on excess demand for the currently used proxy which is measured unemployment.

Another area of potential use is in the analysis of wage changes and relative incomes. Until now, the construction of models of bargaining behaviour has been severely retarded by the lack of a measure of difficulty which employers experience in finding the desired complement of labour input. A measure of the number of vacancies which are open for immediate start is precisely what is needed, and the proportion of these positions which have existed one month or more adds a qualitative dimension.

Other analytical uses which spring to mind include the analysis of migration patterns. It is also probable that, like most new tools of economic analysis, unforeseen uses will arise. There is every possibility that as experience is gained in using vacancy data for public policy they will come to have a national importance not far from that of the unemployment figures.

⁷ References in this area are numerous. One of the best descriptions of the job vacancy approach to the topic, as well as an extensive list of references, can be found in B. Hansen, "Excess Demand, Unemployment, Vacancies and Wages", *The Quarterly Journal of Economics*, LXXXIV, No. 1 (February 1970), pp. 1-23.

NEW DATA ON THE STUDENT LABOUR FORCE IN THE SUMMER

Peter Hicks*

During the summer months employment and unemployment data are greatly influenced by the temporary influx of students to the labour force. In July 1970, the monthly Labour Force Survey added questions to measure the characteristics of this student work force. The questions, which were repeated in August, asked persons aged 14-24 years whether they were full-time students in March and, if so, whether they planned to return to school in the autumn. The basic questions were asked again in the summer of 1971, although comparability is slightly affected by the addition in 1971 of a "not sure" category concerning the autumn plans of students.

The table on the next page summarizes the main findings with regard to labour force status up to July 1971, the most recent data available when the note was written. A more detailed analysis of the characteristics of students in July 1970 has already been published.¹

The table shows that at the peak of the summer, some 40% of returning students enter the labour force, with a much higher proportion of labour force participation among older students. The data suggest a "seasonal" pattern in student labour force participation, rising to a peak in July and falling off in August. The August drop would be due to vacation-taking, early termination of summer jobs, or possibly discouragement after unsuccessful searches for summer work. Similarly, unemployment rates of returning students drop over the course of the summer as students find jobs or drop out of the labour force.

In this context, the "summer" starts in May for students aged 20-24 years and in June for teenage

students who are mainly at school in May. Thus, taking the 1971 data, rates for teenagers are lower than those for older returning students in May and higher in June and July when the former are fully in the labour market. The 1970 data showed a somewhat different pattern in the July to August change, the decline for teenagers being greater than for older students, which left the August unemployment rate for teenagers somewhat below that for those 20-24 years of age. This August switch might be due to a greater need for income among the older group and/or to the longer period available for work after the mid-August survey week (that is, older post-secondary students usually return to school later than those attending secondary schools).

Unemployment rates are much lower for summer students than for young persons leaving school. There are a number of factors which could account for this. Participation rates are much lower for summer students (especially in the under 20 age group) and perhaps only the best qualified enter the labour force. School-leavers are perhaps more selective than summer students in their choice of a suitable job. Or there may simply be more job openings for temporary summer work than for full-time work. Certainly the great discrepancy in unemployment rates between school-leavers and those who were not attending school in the spring suggests an initial period of difficulty in finding work after leaving school. The discrepancy is particularly marked for the older age group. In the case of teenagers it is evident that the period of difficulty in finding work may last a considerable time.

The data available at this time allow a year-to-year comparison for the month of July. Participation rates for summer students in July 1971 were about the same as in 1970, although unemployment was lower. On the other hand, unemployment rates and participation rates were higher in 1971 for school-leavers. Unemployment rates had also risen for young persons not attending school in March.

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¹ A.E. Kyffin, "Student Employment and Unemployment, Summer 1970", *Canada Manpower Review*, III, No. 4, Department of Manpower and Immigration (Ottawa: Information Canada, 1970), pp. 17-29.

**Unemployment Rates and Participation Rates, by Age and Student Status,
Selected Months, 1970 and 1971**

	1970	May 1971	June 1971	July 1971
Unemployment rates				
Persons 14-24:				
Full-time students in March	8.8	8.4	10.4	18.6
Planning to return to school ¹	11.5	5.3	11.0	16.4
Not planning to return to school ¹	27.0	20.0	24.3	23.2
Not full-time students in March	11.1	8.7	11.5	9.6
Totals	10.0	8.7	12.0	12.7
Persons 14-19:				
Full-time students in March	8.0	7.0	10.8	20.4
Planning to return to school ¹	12.6	9.0	16.5	18.4
Not planning to return to school ¹	27.7	22.0	23.5	20.5
Not full-time students in March	11.7	11.1	20.1	17.5
Totals	14.9	10.0	15.4	19.3
Persons 20-24:				
Full-time students in March	11.6	10.6	19.4	13.1
Planning to return to school ¹	9.6	6.4	17.5	10.4
Not planning to return to school ¹	15.7	19.0	25.0	16.9
Not full-time students in March	6.5	7.0	8.5	7.0
Totals	7.4	7.6	10.0	8.1
Participation rates				
Persons 14-24:				
Full-time students in March	46.0	42.4	26.7	36.4
Planning to return to school ¹	42.3	37.7	24.2	32.9
Not planning to return to school ¹	78.2	80.5	46.8	59.7
Not full-time students in March	77.5	76.7	78.7	76.1
Totals	60.5	57.8	50.7	55.5
Persons 14-19:				
Full-time students in March	41.7	37.8	21.5	30.8
Planning to return to school ¹	38.7	34.0	19.9	28.1
Not planning to return to school ¹	78.9	81.5	38.9	55.4
Not full-time students in March	80.1	78.3	79.4	78.1
Totals	49.0	45.0	33.2	40.1
Persons 20-24:				
Full-time students in March	74.5	71.5	56.8	60.2
Planning to return to school ¹	73.9	67.5	57.3	70.0
Not planning to return to school ¹	76.9	79.8	57.8	67.0
Not full-time students in March	76.7	76.3	78.5	78.0
Totals	76.3	75.4	74.4	76.5

¹ In the 1971 surveys, components of "full-time students in March" do not add because of the existence of a "not sure" category which is not shown in this table.

THE EDUCATIONAL ATTAINMENT OF THE CANADIAN LABOUR FORCE: 1960 - 70

Ian Macredie*

The average level of education in the Canadian labour force has increased markedly over the past ten years. In 1970, for example, approximately 70% of the labour force had at least some secondary schooling and almost 40% had completed secondary schooling or

better. In 1960, the same groups accounted for 55% and 25% respectively. This study will examine the factors which have raised the level of education as well as the changes which have occurred in the relationship between education and other labour market variables.¹

I. The Shifts in the Education Profile

Changes in the educational attainment of the labour force must come about through either or both of two mechanisms. These are (1) changes in the educational attainment of the population from which the labour force is drawn, and (2) unequal changes in the participation rates² of population sub-groups which differ in their individual educational attainment.

Population

Chart 1 presents an "education profile" of the labour force (1a) and of the total population 14 years and over (1b) for each of the three years under study. An education profile is simply a method of graphing the percentage share of each level of attainment in a given year. The changing shape of the curves or profiles in the three years shows how the percentage shares have been changing over time.

Notice that the levels of attainment have been plotted with the lowest levels on the left. Therefore, when the left-hand side falls over time (which means that the right-hand must rise, since the points must add to 100%) we say that the profile has shifted to the right, indicating an increase in the average level of education.

The close resemblance between Graphs a and b in Chart 1 indicates that changes in the population profile are at least in part responsible for the corresponding shifts in the profile of the labour force. Accordingly, the causal factors underlying the shifts in the population education profile are also of interest.

To begin with, it can be seen from Table 1 that the older the age cohort, the less educated it tends to be. Therefore, as the ranks are thinned in the older age groups, the passage of time alone will cause an upward shift in the overall median level of schooling.³ This tendency is reinforced by the fact that younger persons have been increasing as a percentage of the total population.

Secondly, the age group which is entering the labour market (20 - 24 years) has shown the largest increases in the level of educational attainment. The overall labour force profile would have shifted to the right in the absence of any change in the attainment of this group, simply because it was already the most highly-educated in 1960. But the educational attainment of the age group 20 - 24 years has improved markedly over the decade and this has accelerated the shift.

Participation

If, in the population, each group with the same age, sex, and level of education had the same participation rate (regardless of the level), then the labour force education profile would be identical to the corresponding population profile. This, however, is not the case, as Chart 1 will show.

In general, it is the distribution of participation rates that defines how the education profile of the population is transformed into the corresponding profile of the labour force. Changes in particular participation rates, then, will alter this transformation and it is these changes which are of interest here. It is evident that an increase in the participation rate of a highly-educated subgroup of the population will tend to shift the labour

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¹ The data available are somewhat restricted in coverage. Specifically, they understate the true level of educational attainment since they fail to measure formal training obtained in post-secondary institutions other than universities and training taken on-the-job such as apprenticeships. The data were obtained from a question added to the Labour Force Survey in February 1960, 1965, and 1970: "How far did this person go in school?" The responses were coded into (one of) the following categories:

- (1) Some elementary education or less (included those with no schooling)
- (2) Elementary education complete
- (3) Some secondary education
- (4) Secondary education complete
- (5) Some university
- (6) University degree

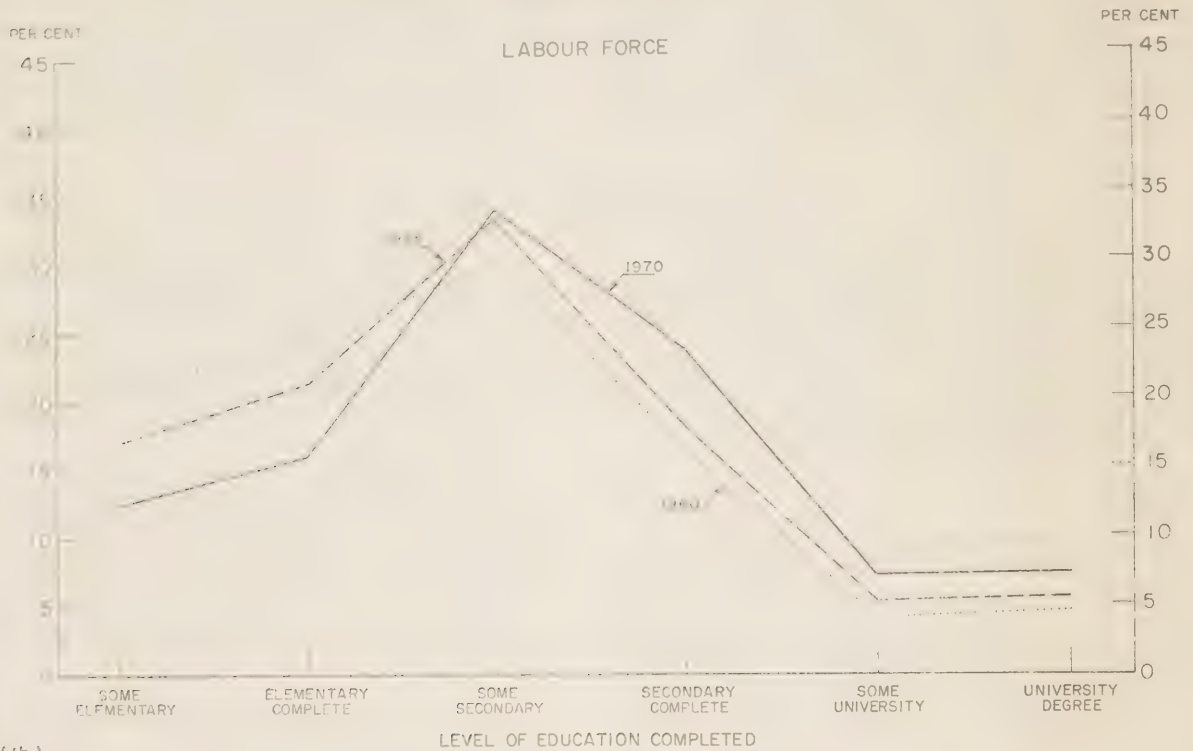
The 1960 and 1965 data have previously been published in Frank J. Whittingham's study, "Educational Attainment of the Canadian Population and Labour Force: 1960-1965", *Special Labour Force Studies*, No. 1, Statistics Canada (Catalogue 71-505 Occasional) (Ottawa: Information Canada, 1966). The 1970 data are from original tabulations prepared for this paper. See Appendix.

² A participation rate is defined as the percentage of a given population which is in the labour force.

³ Due to the variety of years of schooling which constitute given levels of education in the various provinces the actual medians have not been calculated.

(1a)

EDUCATION PROFILES OF THE CANADIAN LABOUR FORCE AND POPULATION: 14 YEARS OF AGE AND OVER: 1960, 1965, 1970



(1b)

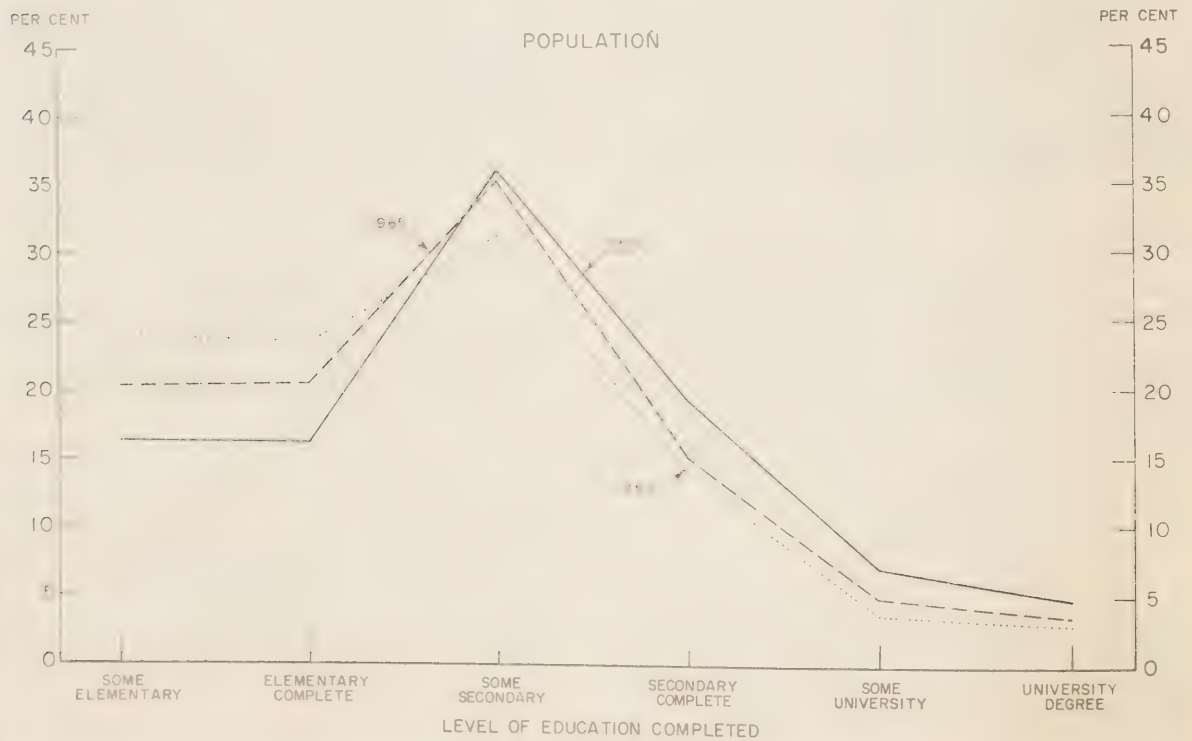


TABLE 1. Population, by Age¹ and Level of Education: Canada 1960, 1965 and 1970

Level of education	1960		1965		1970	
	20-24	65+	20-24	65+	20-24	65+
	per cent ²					
Some elementary education or less	15.7	40.8	9.6	39.5	6.0	39.2
Completed elementary education	18.5	31.2	13.9	30.2	8.0	27.9
Some secondary education	35.8	14.0	37.4	15.2	32.5	16.2
Secondary education complete	20.3	9.6	24.2	10.2	30.3	11.3
Some university	7.5	2.1	11.7	2.7	18.3	2.6
University degree	2.2	2.4	3.2	2.2	5.0	3.0
Percentage age group in the total population	9.9	10.8	10.4	10.6	12.0	10.5

¹ The age group 20-24 years has been used instead of the available category 14-19 years on the grounds that, except for university students, the former age group will consist almost entirely of those who have terminated their formal education.

² Columns may not add to 100 per cent due to rounding.

force profile to the right, as will a decrease in the participation rate of a poorly-educated group. The participation rates for a number of age and sex categories for 1960, 1965 and 1970 may be seen in Table 2,

together with a rough summary measure of the education level in the corresponding population subgroup. This rough measure is the percentage which has completed secondary school or more.

TABLE 2. Participation Rates and Percentages of Population Completing at least a Secondary Education

Age group and sex	1960		1965		1970	
	Participation rate	Secondary complete	Participation rate	Secondary complete	Participation rate	Secondary complete
	per cent					
14-19 years:						
Male	38.5	8.0	31.6	9.2	32.3	14.3
Female	31.0	12.4	27.0	12.7	26.1	19.4
Totals	34.7	10.2	29.4	11.0	29.2	16.8
20-24 years:						
Male	89.0	27.7	85.1	37.0	78.5	52.4
Female	49.0	32.2	51.7	40.8	56.9	54.8
Totals	68.4	30.0	68.1	39.1	67.8	53.6
25-44 years:						
Male	97.2	23.8	96.9	27.4	96.2	37.3
Female	27.2	26.4	31.3	30.0	38.6	43.6
Totals	61.8	25.2	63.7	28.7	67.3	40.4
45-64 years:						
Male	91.5	18.6	90.8	21.1	89.8	27.1
Female	25.6	21.0	31.9	23.0	35.6	28.3
Totals	59.1	19.8	61.4	22.0	62.3	27.7
65+ years:						
Male	29.3	13.5	25.6	13.5	21.1	14.8
Female	5.3	13.2	6.1	16.6	5.1	18.5
Totals	17.0	14.0	15.3	15.0	12.5	16.6

Comparing the trends in participation with the trends in the educational attainment of individual age-sex groups, it will be observed that some are complementary while others are divergent. For instance, the numerically important group of males 20-24 years is highly educated and increasingly so; yet their participation rate has declined steadily over the decade.⁴ These opposing trends in participation and educational attainment are offsetting so that it is their net effect which contributes to shifts in the education profile of the labour force. On the other hand, females of the same age group, who are even better-educated than the males,

⁴ Since the enrolment rate is increasing for university students, most of whom fall into the age 20-24 years group, increasing educational attainment and declining participation are causally related.

have increased both their participation rates and their educational attainment since 1960. In this case, the trends are complementary in moving the education profile to the right. Finally, the oldest workers (65 years and over) who are the least educated, have increased their educational attainment only slightly, and they have the lowest (and a declining) participation rate.

In order to assess the net impact of these shifting participation rates – or, more specifically, in order to determine to what extent shifting participation rates are responsible for the movement in the labour force education profile since 1960 – a simulated 1970 labour force education profile has been calculated on the basis of 1960 participation rates by age, sex, and level of education. The results of this simulation are given in Table 3.

TABLE 3. Observed Education Profile of the Labour Force Age 20 or Greater compared to the Same Profile based on the 1960 Participation Rates

Level of education	Observed males	Simulated males	Observed females	Simulated females	Observed total	Simulated total
	per cent ¹					
Some elementary	15.0	15.6	8.4	7.0	12.9	13.3
Elementary complete	18.2	18.3	13.2	12.1	16.7	16.7
Some secondary	31.8	31.6	30.3	29.8	31.3	31.1
Secondary complete	19.9	19.6	32.2	33.5	23.7	23.2
Some university or university degree	15.1	14.9	15.9	17.7	15.3	15.6

¹ Columns may not add to 100 per cent due to rounding.

The picture which emerges for 1970 is basically an unaltered education profile. Although there is some slight suggestion that the profile has moved to the right as a result of shifting participation rates, it is difficult to determine whether or not this is within the range of sampling variability. It must be concluded that the substantial changes in the education profile in Chart 1a are not to any significant extent due to shifting participation rates but are primarily the result of increasing numbers of well-educated young people in the population (and therefore, in the labour force) and of diminishing numbers of older, poorly-educated workers.

In addition to the effect of participation rates on the education profile, there are some interesting aspects of the distribution of participation rates themselves. Charts 2 and 3 present a summary description of the participation rates associated with the various education categories.

For males 14 years and over (Chart 2a) there does not seem to be a systematic relationship between partici-

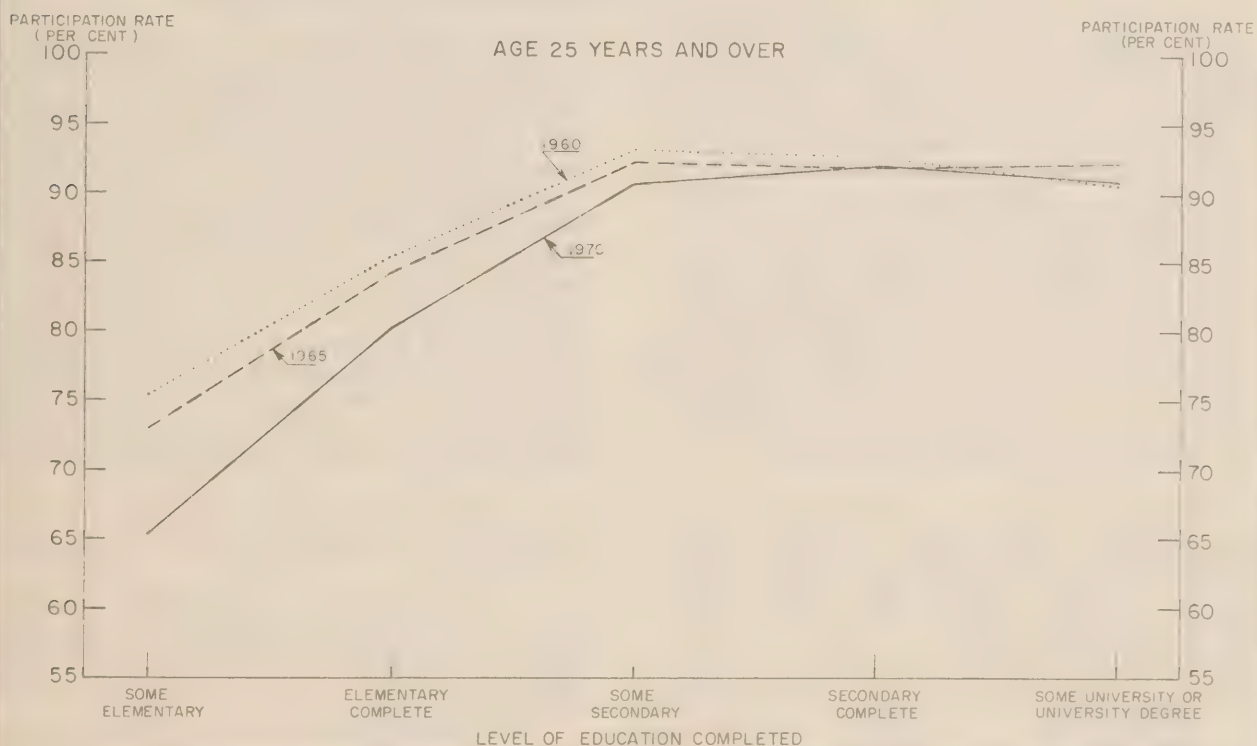
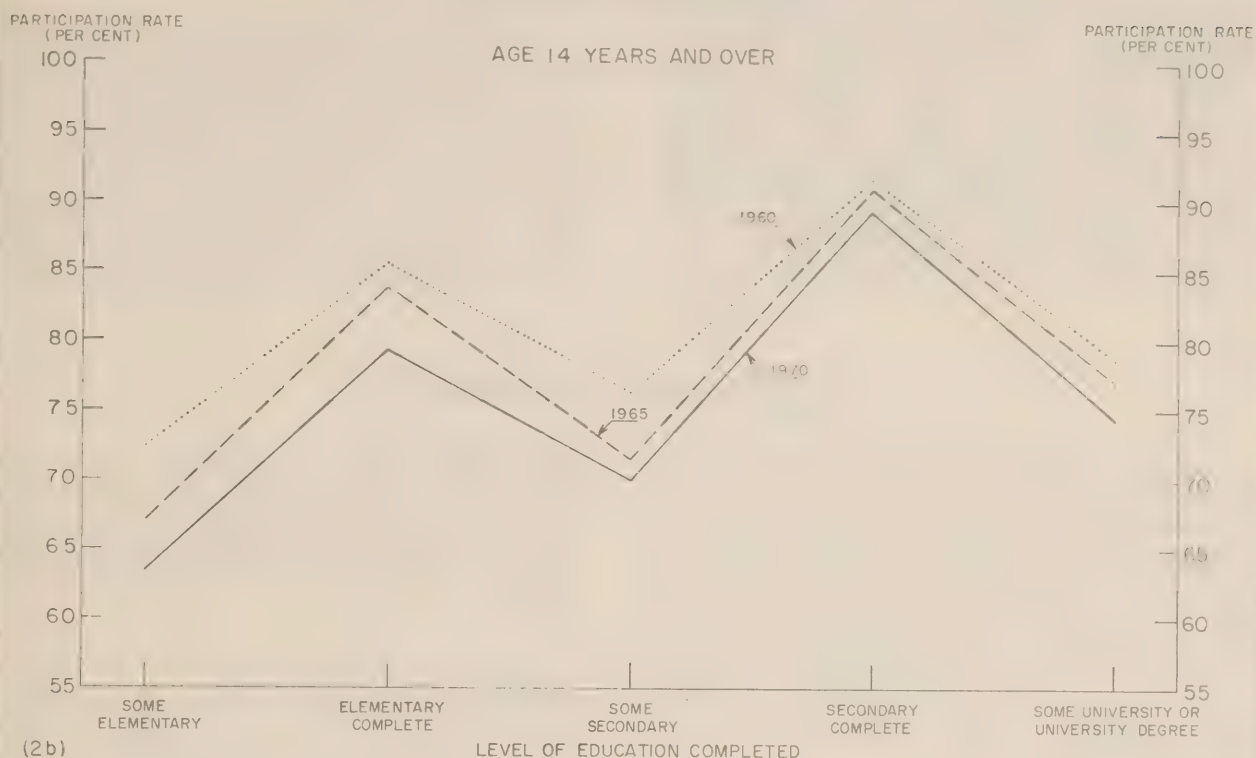
pation and education in any given year. Reading across the graph we see that each successively higher level of education is sometimes associated with a higher participation rate and sometimes with a lower rate. However, the erratic quality of this relationship is largely due to the age group 14-24 years since for those 25 years and over a clearer pattern emerges. Chart 2b shows a consistent relationship – higher levels of education being associated with higher participation rates at least up to the “some secondary” level. Above that level, approximately constant participation rates obtain.

Examining the changes over time, we see that for the total 14 years and over there has been a decline in participation rates in all education categories, but for males 25 years and over the same secular decline is confined to those with less than a complete secondary education.

The decline in the overall male participation rate through the sixties is well known and it is evident that the decline is at least in part due to increasing average

CHART-2

(2a) PARTICIPATION PROFILE BY LEVEL OF EDUCATION
FOR MALES⁽¹⁾: 1960, 1965, 1970



(1) SOME OF THE DECLINE IN THE MALE PARTICIPATION RATES IN 1970 MAY BE DUE TO THE RETRAINING PROGRAMME OF THE DEPARTMENT OF MANPOWER AND IMMIGRATION, SINCE MOST OF THOSE ENROLLED IN SUCH PROGRAMMES WOULD BE CLASSIFIED AS "GOING TO SCHOOL" AND WOULD THEREFORE NOT BE INCLUDED IN THE LABOUR FORCE. HOWEVER, AN EXACT COUNT OF THE ENROLMENT AS OF FEBRUARY 1970 WAS NOT AVAILABLE SO THAT THIS FACTOR COULD NOT BE QUANTITATIVELY TAKEN INTO ACCOUNT.

years of schooling and to earlier retirement. What this analysis adds is the evidence that the decline in participation (for men 25 years and over) is confined to those with less than a secondary education. Although school enrolment can be ruled out as a contributing factor in this age group, the decline may simply reflect the disproportionate number of older males in the lower education categories which makes their participation rates more subject to the effects of earlier retirement. However, in the two highest education categories, which are not without representation from the older age groups, the participation rates in 1970 were still at their 1960 levels. It is reasonable to suppose that the economy's receding demand for the poorly-educated has affected,

in some degree, both the age of retirement of this segment of the working population and its tendency to withdraw from the labour force.

The female population exhibits a very strong positive relationship between participation and education. Without exception, successively higher levels of education are associated with successively higher participation rates. In addition, the participation profile of those 14 years and over (Chart 3a) is very similar to the profile of the 25 years and over age group. Through time, an increase in participation is found at all education levels, which is in obvious contrast with the males.

II. Education Profile, Males and Females

Attention now turns to the education profile of the labour force *per se*, giving particular attention to the differences between males and females.⁵ For ease of comparison, the differences in the male-female education profiles have been plotted in Chart 4. In reading the chart, a positive value indicates that the percentage of the male labour force with a given level of education is greater than the corresponding percentage in the female labour force; that is, the relative percentage of males is larger. Conversely, a negative value indicates a relatively larger percentage of females.

Perhaps the main observation is that the negative values are largely confined to the higher education levels, starting with "some secondary". In other words, female workers continue to be, on average, better educated than the male, although the differential has not remained static over the decade.⁶ Between 1960 and 1965 there was a substantial increase in the relative percentages of males with only "some elementary" or "elementary complete" but the percentages of males with some secondary did move closer to equality with the percentage of females in that category. During the same five-year period, the relative proportion of females with "secondary complete" increased by 5 percentage points. In the university category, the percentage of males exceeded the percentage of females in 1960 but five years later their positions had reversed.

During the 1965 - 70 period, there was a slowing down in the rate of these changes. The relative percentages of males with "some elementary" and "elementary complete" declined (although they remained higher than the female percentages) and by 1970 the percentage of males with some secondary education exceeded the corresponding percentage for females. In this period,

there appears to have been virtually no change in the relative positions of males and females with "secondary complete" or better. These observations from the last half of the decade might suggest that male workers are beginning to catch up in terms of educational attainment.⁷

Chart 4 compared the distribution of educational attainment in the male labour force to the corresponding female distribution. Table 4 and the discussion which follows look at the relative positions of the sexes within the total labour force over the decade.

These figures reveal that a substantial proportion of the best-educated members of the total labour force are women. In 1960, for example, women constituted 25% of the labour force but 40% of the secondary school graduates in the labour force. By 1970, despite a large increase in the numbers in the labour force, women could claim a slightly larger share of the secondary school graduates. They have also had an impressive share of the university-educated - 25% in 1960⁸ and almost 33% in 1970. The latter figures should perhaps be treated with some caution since the group takes in a wide range of educational attainment, all the way from a year general arts to advanced degrees in engineering and the sciences. It seems likely that women are more heavily concentrated at the lower end.

There is another difference as well. If we take the male population 25 years and over with "some university

⁵ Whittingham, *op. cit.*, has previously commented on these differences in 1960 and 1965.

⁶ The higher percentage of females completing a secondary education was also apparent in Table 2.

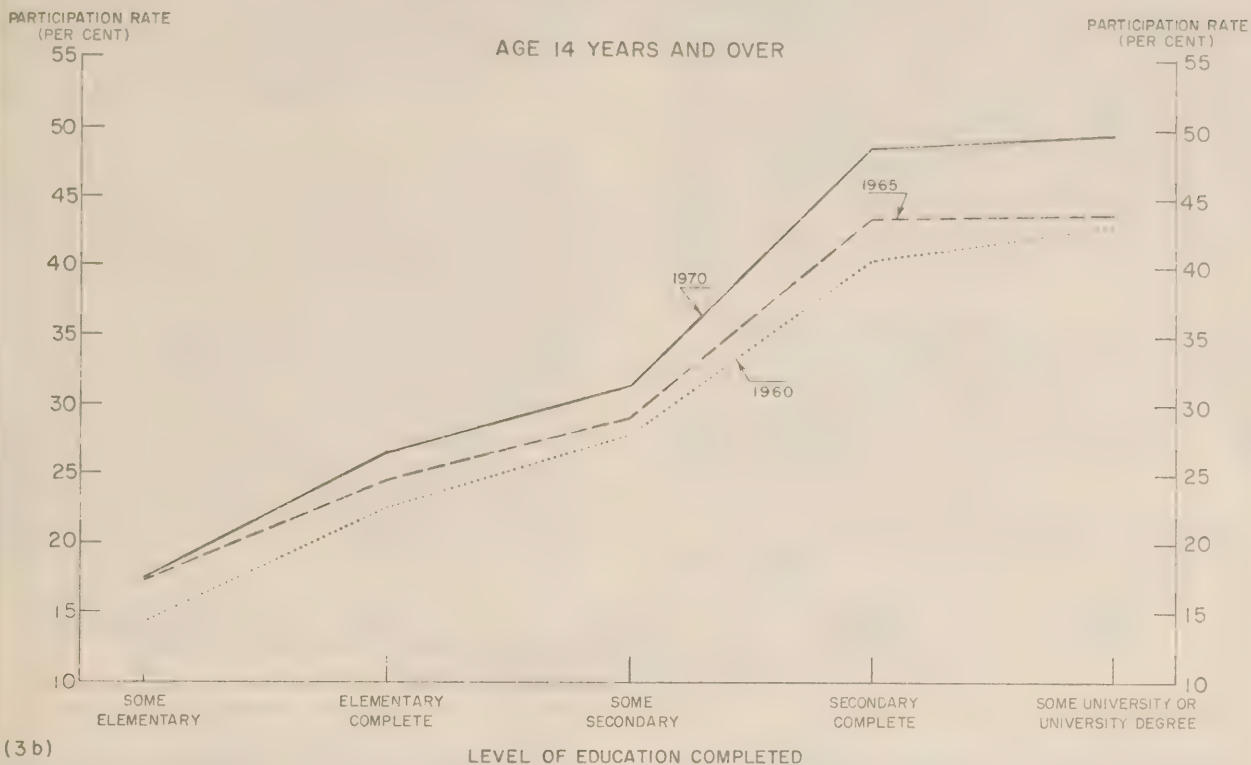
⁷ This is in contrast with the United States experience where the two groups are now approximately equal in educational attainment. See William Deutermann, "Educational Attainment of Workers, March 1969 and 1970", *Monthly Labour Review*, XCIII, No. 10, U.S. Department of Labour (October 1970), pp. 9 - 10.

⁸ The 1961 Census showed women accounting for 24.2% of the labour force with "some university" or a "university degree" (1961 *Census of Canada*, III, Bulletin 3.1-9, Table 17, Statistics Canada (Catalogue 94-503) (Ottawa: Information Canada).

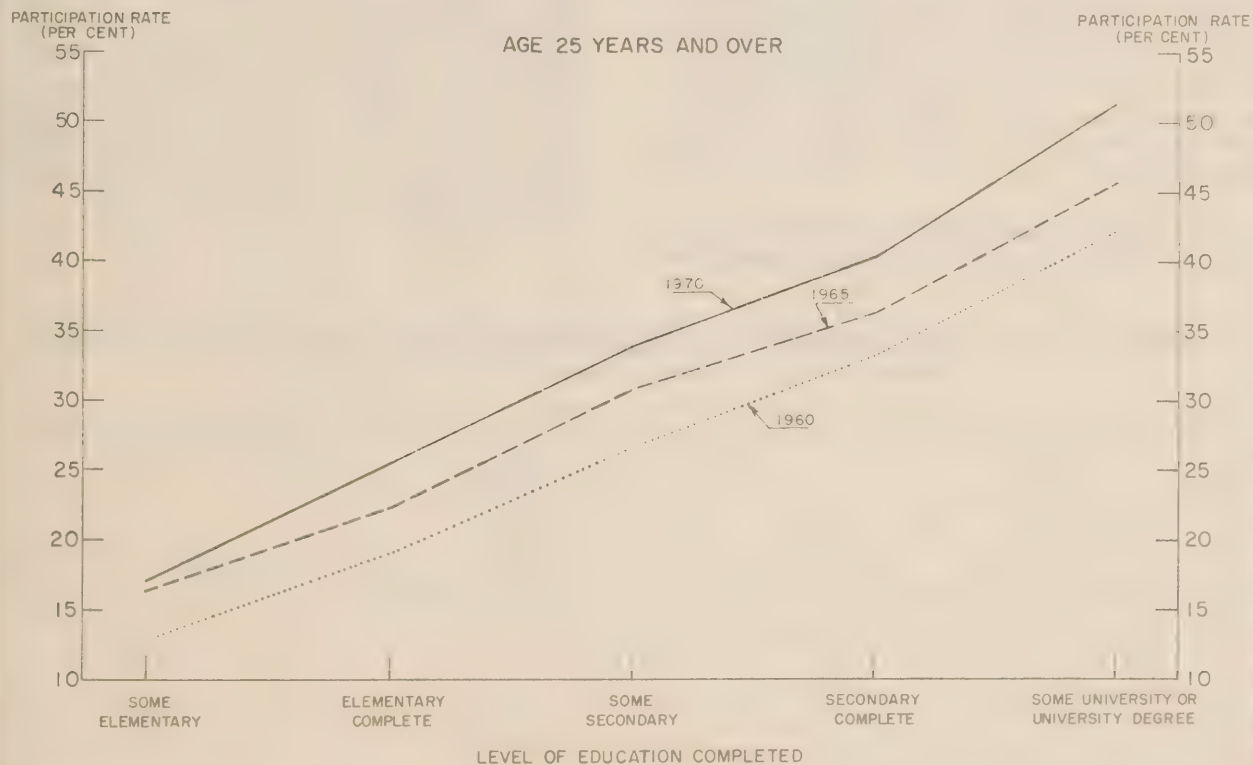
CHART-3

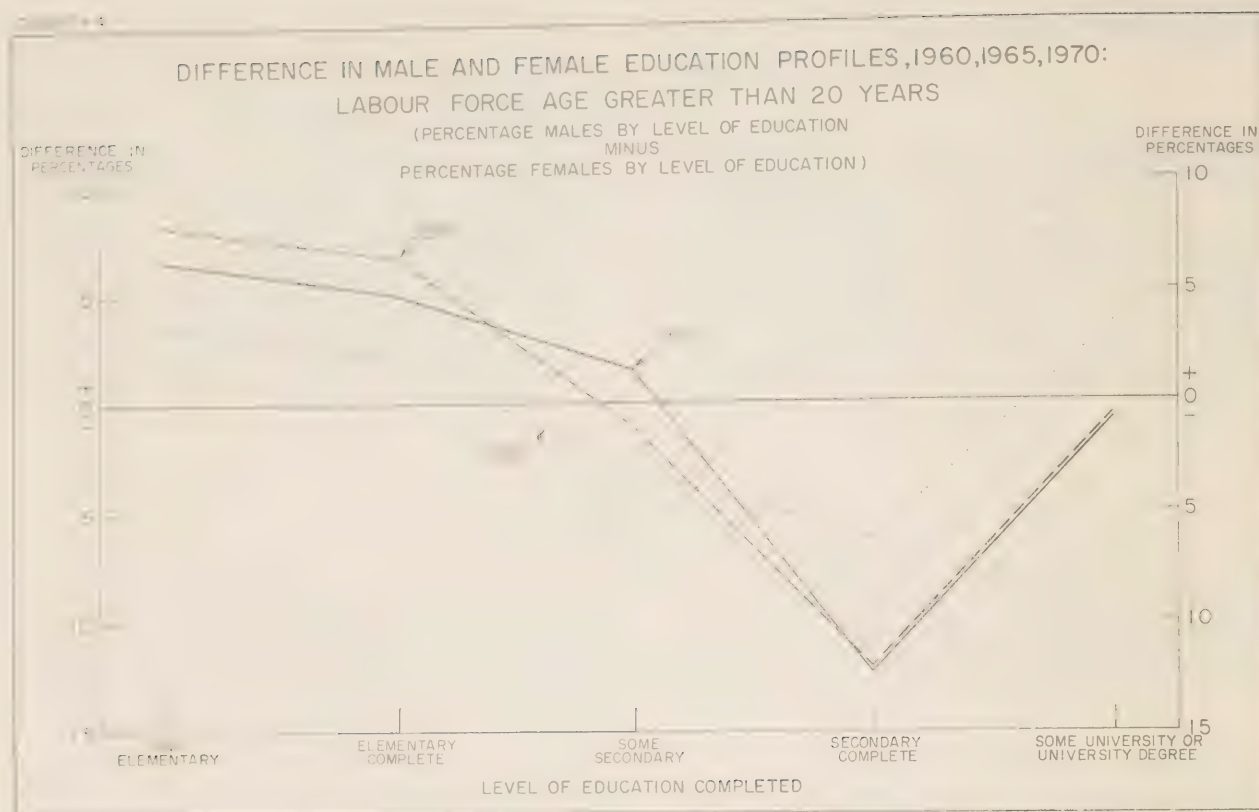
(3a)

PARTICIPATION PROFILE BY LEVEL OF EDUCATION FOR FEMALES: 1960, 1965, 1970



(3b)





or university degree" (Chart 2b) we find 90.8% were in the labour force in 1970. The participation rate for females in the same education category (Chart 3b) was only 51%. Thus, while women with higher education are as well represented in the labour force as are women as a whole, they are distinctly underrepresented, relative to men, when compared to the total population acquiring higher education.

Turning to the other end of the educational scale, the female share of the labour force with no more than

some elementary education has grown by more than the other education groups (see Table 4). To some extent this increasing percentage would reflect the declining participation of men in the same education group, but the increase is large enough to cover an increase in female representation as well. It is an interesting commentary on the much-publicized increasing participation of women to see that so many of the new opportunities have been suitable for women with less than 7 or 8 grades of school.

TABLE 4. Percentage of Labour Force Accounted for by Females 14 Years of Age and Over, by Selected Levels of Education for 1960, 1965 and 1970

Year	Percentage of entire labour force accounted for by females	Percentage of labour force subgroup accounted for by females		
		Some elementary	Secondary complete	Some university or university degree
1960	21.8	14.2	40.0	25.0
1965	28.6	22.0	41.7	27.3
70	32.8	24.9	43.5	32.7

III. Education and Unemployment

In each of the three years examined in this study, there is a strong inverse relationship between the level of education of a labour force subgroup and its unemployment rate (see Table 5). This is hardly new information, but again there would be an interest in seeing how the relationship may have changed over the decade.

In order to make comparisons of unemployment rates by sex and level of education over time, it is necessary to adjust the rates of each subgroup according to the overall unemployment rates prevailing in each of the three years. To do this, the individual unemployment rates (e.g., the rate for males with some secondary education) have been divided by the overall rate by sex to yield an unemployment index. The validity of this procedure rests on the assumption that the relationship between the individual rates and the total was constant over time. This is an arbitrary assumption but, given the limited data, it must suffice. Tables 5 and 6 give the raw unemployment rates and the unemployment indices respectively.

On *a priori* grounds we would expect that, over the decade, those with only "elementary or less" would show the greatest increase in unemployment relative to the overall unemployment rate. However, according to Table 6, this was not consistently the case. While males in this category had the greatest increase in the unemployment index in the five years ending 1965, the same group registered a slight decline in the five years ending 1970. The second five-year period shows no change for males with "elementary complete" and an actual increase in the unemployment index of males with "some secondary" or better.

A similarly mixed distribution of changes is evident in the indices for females, and here there are some observations which are strongly contrary to our expectations. Specifically, the greatest changes occur in the least-educated group and these were declines in the unemployment indices in both periods.

There are several possible reasons why the data did not substantiate our expectations. For example, job

TABLE 5. Observed Unemployment Rates: Canada, 1960, 1965 and 1970, by Sex and Level of Education (14 Years of Age and Over)

Level of education	1960			1965			1970		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
	per cent								
Some elementary or less	20.6	7.9	18.7	14.3	6.1	12.8	15.5	6.4	13.6
Elementary complete	10.9	4.3	9.6	7.5	3.4	6.6	8.4	5.0	7.5
Some secondary	7.7	4.1	6.7	5.6	4.0	5.1	8.0	5.1	7.2
Secondary complete or more	3.4	1.6	2.8	2.3	1.4	1.9	3.4	3.0	3.3
Overall rate by sex	10.7	3.7	8.9	6.9	3.1	5.8	7.7	4.2	6.5

Source: The unemployment rates are taken from the monthly publication *The Labour Force*, Statistics Canada (Catalogue 71-001 Monthly) (Ottawa: Information Canada), for February 1960, 1965 and 1970.

TABLE 6. Unemployment Indices: Canada, 1960, 1965 and 1970, by Sex and Level of Education (14 Years of Age and Over)

Level of education	1960			1965			1970		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
	per cent								
Some elementary or less	1.93	2.14	2.10	2.07	1.97	2.21	2.01	1.52	2.11
Elementary complete	1.02	1.16	1.08	1.09	1.10	1.14	1.09	1.19	1.15
Some secondary .....	.72	1.11	.75	.81	1.26	.88	1.04	1.21	1.09
Secondary complete or more .....	.32	.41	.32	.33	.41	.34	.44	.50	.34

seniority may be a good substitute for formal education in terms of job security. If so, the risk of unemployment which confronts the older cohorts due to lower levels of education may be mitigated by their high degree of job seniority. As well, the earlier observations on participation may have some relevance here. For males, the decline in participation was found to be concentrated in the lower education categories (some secondary or less) and it may be that these withdrawals from the labour force have come largely from the ranks of the unemployed. This would make the observed behaviour of

the unemployment indices somewhat more reasonable. For females, the increase in the participation rates of those with the least education is consistent with, but does not explain, the above-noted behaviour of the indices. That is, the increases in participation are consistent with relatively improving employment rates among poorly-educated females.

Without considerably more data, we are left to conclude that no strong secular trend exists, or at least is not apparent, in these data.

IV. Summary

Young people in the labour force continue to be better educated than their parents or grand-parents and this age-education relationship has become more pronounced over the decade. It is this age-education relationship which has accounted for most of the shift in the education profile of the labour force since 1960.

The female members of the labour force continue to be better educated on average than the male and this disparity has increased somewhat over the decade.

The decline in male participation over the decade was largely confined to men with less than a complete secondary education, while the increase in female participation rates has been spread over the entire range of educational attainment. By combining the observations on participation rates and unemployment rates by level of education, it might be concluded that declining participation among poorly-educated males is in part responsible for the fact that the incidence of unemployment in the group has not increased perceptibly over the decade.

APPENDIX

TABLE A 1. Population by Age, Sex and Level of Education: Canada, February, 1970

	Total male	Age						
		14-19	20-24	25-34	35-44	45-54	55-64	65+
		'000						
Some elementary	1,261	121	58	131	191	217	230	313
Elementary complete	1,210	69	71	188	247	239	200	195
Some secondary	2,663	890	300	451	411	314	196	101
Secondary complete	1,195	101	226	275	225	193	116	59
Some university	573	79	198	117	72	57	33	18
University degree	468	--	46	159	115	76	14	29
Totals	7,370	1,261	897	1,322	1,261	1,096	819	714

	Total female	Age							Total
		14-19	20-24	25-34	35-44	45-54	55-64	65+	
		'000							
Some elementary	1,157	85	49	122	171	209	223	297	2,418
Elementary complete	1,201	73	72	172	227	223	193	240	2,411
Some secondary	2,698	813	278	464	431	349	212	152	5,360
Secondary complete	1,689	146	313	394	315	262	141	117	2,884
Some university	496	87	128	100	65	56	39	22	1,069
University degree	262	--	43	92	50	35	24	17	731
Totals	7,503	1,205	884	1,344	1,260	1,134	832	844	14,873

-- estimated empty cell.

-- estimate less than 10,000.

TABLE A2. Labour Force by Age, Sex and Level of Education: Canada, February, 1970

	Total male	Age						
		14-19	20-24	25-34	35-44	45-54	55-64	65+
		'000						
Some elementary	799	42	50	120	173	194	175	46
Elementary complete	938	35	65	181	240	225	199	42
Some secondary	1,865	257	270	448	401	390	197	29
Secondary complete	1,065	60	210	270	222	190	100	17
Some university	347	13	73	103	70	56	30	--
University degree	428	—	36	152	111	73	40	14
Totals	5,466	407	704	1,266	1,219	1,040	679	154

	Total female	Age							Total
		14-19	20-24	25-34	35-44	45-54	55-64	65+	
		'000							
Some elementary	202	13	16	26	47	52	41	--	1,001
Elementary	318	20	30	53	76	75	52	12	1,277
Some secondary	846	163	135	156	173	139	71	--	2,711
Secondary complete	823	99	227	172	134	126	54	10	1,890
Some university	222	20	62	52	33	34	17	--	569
University degree	155	—	34	54	31	23	13	--	584
Totals	2,565	314	503	512	494	450	249	43	8,031

-- estimated empty cell.

-- estimate less than 10,000.

Note: For definitions of the labour force and the unemployed see *The Labour Force*, Statistics Canada, (Catalogue 71-001 Monthly) (Ottawa: Information Canada).

TABLE A3. Unemployed by Age, Sex and Level of Education: Canada, February, 1970

	Unemployed (age 14 years and over)		
	Male	Female	Total
	'000		
Some elementary	124	13	136
Elementary complete	80	16	96
Some secondary	150	43	194
Secondary complete	48	28	77
Some university or university degree	15	--	23
Totals	418	108	526

-- estimate less than 10,000.

Note: For definitions of the labour force and the unemployed see *The Labour Force*, Statistics Canada, (Catalogue 71-001 Monthly) (Ottawa: Information Canada).

DEVELOPING STATISTICS ON INDUSTRIAL INJURIES

May Nickson*

The production of statistics on industrial injuries in Canada falls to ten separate workmen's compensation boards in the ten provinces. No national statistical program exists. And since, for the usual reasons of different concepts, collection procedures, etc. provincial statistics are not easily combined, there are no national statistics on accidents and injuries at work. The general accident situation across Canada in terms of trends in incidence by region, industry, or occupation is largely unknown.

This paper reports on an investigation launched by Statistics Canada at the request of the Industrial Accident and Prevention Branch of the Canada Department of Labour. The latter, which is responsible for the federal government's accident prevention program, requires data to (a) identify the areas most likely to benefit from increased safety activity, (b) evaluate the effectiveness of the various safety regulations and programs now in operation, and (c) facilitate a general assessment of the accident situation to be made by the Canadian Association of Administrators of Labour Legislation (CAALL).

Purpose of Statistics

The purpose of Statistics Canada's investigation is to determine the benefits, costs and feasibility of developing a program for tabulating national statistics.

An initial study showed that the cost of industrial injuries is surprisingly high. From data on the insured population it was estimated that 16% of all employed workers have an accident each year, and that 7% have an accident resulting in a time-loss from work. Workmen's compensation boards are spending annually nearly \$300 million on compensation and administration to alleviate some of the after-effects of some 760,000 accidents. The total Canadian wage bill is increased 0.8% by payments from employers to workmen's compensation boards, and the increase would be higher if all employers were covered. In addition to this, government agencies and boards across Canada are spending about \$20 million on direct accident prevention measures.

There are a number of agencies, private as well as government, concerned with safety and accident prevention measures, and safety is being promoted in many different ways — for example: regulations of working conditions and methods of operation; inspection of establishments and sites; education and training pro-

grams; promotion and advertising; development of safety devices and clothing. The role of statistics is to assist in evaluating the effectiveness of various programs, to suggest means of distributing available resources (e.g., when to inspect) and to help pin-point areas of risk (who has accidents, the conditions under which they occur) for direction of research on prevention measures.

Type of Statistics Required

Persons concerned with accident prevention need to know the industries, areas (sometimes even the plants), and occupations in which the highest incidence of accidents or the most serious accidents occur. They also need to know the nature of injuries occurring, the causes, and the main mechanical hazards involved. Comparable statistics should therefore be available by province and by industry, giving the number of accidents, type of accident, and nature of the injury. These data should be related to a specific time period, such as a calendar year, and to information on the average number of persons employed in each province and industry in order to obtain incidence.

Since certain industries operate under the jurisdiction and control of the federal government, a separate tabulation of accidents in these areas would be required by the Department of Labour in conjunction with the national program. In addition, information is needed on which to base estimates of the medical costs of accidents and the economic costs resulting from time lost from work.

Preliminary Recommendations

In order to fulfill the role indicated above, statistics would be required both on injuries occurring and on exposure risk. One of the reasons why statistics on industrial injuries are still relatively undeveloped in Canada, and elsewhere, appears to be in the difficulties of securing and matching both types of data. Records on injuries are not usually maintained by individual business establishments which can report employment, while the workmen's compensation boards collect injury data but not employment.

The absence of records on injuries would pose serious difficulties if these statistics were to be developed from a survey of establishments. The information would have to be collected immediately following an accident or at the onset of an illness and, with intermittent occurrences, the data collection agency would find it difficult to control coverage. On the other hand, workmen's compensation boards receive reports on almost all injuries where employees are insured and the

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percentage of workers covered is very high (about 85%). For these reasons, and because Statistics Canada is currently attempting to reduce the reporting burden for Canadian businessmen rather than add to it, the initial Statistics Canada report recommended against a direct survey and suggested that an attempt be made to develop statistics from the provincial workmen's compensation boards.

Canada appears to be in a good statistical position in this field, relative to other countries. All workmen's compensation boards are operating efficiently and in a reasonably similar fashion, insuring a high proportion of the work force, and already collecting most of the basic information required for analytic studies. Most boards have been producing annual statistics on injuries for a number of years. However, although there appears to be much similarity in methods of operation, there is little uniformity in the statistics produced. Some boards tabulate claim forms, some tabulate settlements and others something in between. Some tabulate all injuries, some those with time lost from work, some only injuries receiving compensation. Many different codes are used to identify accidents and different methods are employed in combining groups of industries. To produce national statistics, therefore, raises first of all the question of standardizing coding and tabulating procedures.

The preliminary inquiry suggests that, although not all problems have found solution, the chances of success are good. Most boards have adopted mechanical or computerized methods of data processing; many of them are realizing that accidents must be analyzed at more than one period of time and possibly with different reference periods. The old arguments over whether it is better to analyze from claims or settlements seem now to have been resolved quite simply: both are needed. Some boards are already producing both to a limited degree and some are planning to produce more.

The most difficult aspect appears to be the standardization of industrial coding. This is required not merely for the production of national aggregates but also for relating accident statistics to employment and hours of work in the various industries. The latter would provide a measure of exposure against which to assess the incidence and frequency of employment injuries, the lack of which is probably the major data gap in most tabulations of injuries today.

Although the concept of exposure most widely accepted refers to hours spent in the plant, the closest concept which can be measured with reasonable accuracy appears to be the average number of persons employed during the year (man-years). These data are collected by Statistics Canada for larger establishments and sampled for smaller ones but, since they are based on monthly

surveys, it would be difficult for agencies other than Statistics Canada to collect the information.

The initial report recommended that for national statistics exposure be measured in terms of man-years (average employment) and that an attempt be made to match injury data collected by the workmen's compensation boards to employment data tabulated at Statistics Canada.

A further recommendation was made for national tabulations on injury data. The need for such tabulations did not in itself appear to be very significant but there was a definite requirement for comparisons of trends and other analysis between provinces or with other areas, and it appeared that analysis could best be standardized by a central control in conjunction with national tabulations.

Continuing Investigations

Following presentation of the Statistics Canada report in September 1970, the CAALL Safety Committee agreed to promote a national program of injury statistics covering injuries involving time-loss or permanent disability, using Statistics Canada coding for industry and occupation, and Statistics Canada employed man-years, and basing the classification of injuries and accidents on the American Standard Z-16-2. The Committee also noted that since all operations of workmen's compensation boards, including statistical output, were under direct control of the chairmen and directors, an effort should be made by the Safety Committee and its members to inform the board members of the advantages of nationally standardized statistics and what would be involved if they participated.

To date only the B.C. Workmen's Compensation Board and the Canada Department of Labour have fully entered the program but Nova Scotia and Manitoba have participated in the investigations being carried out. It will be possible for provinces to join the national injury program gradually and intermittently.

It is evident that considerable costs are involved in changing the boards' statistical programs and in matching the differing industrial classifications now used to the Standard Industrial Classification (S.I.C.) in use at Statistics Canada. Statistics Canada has initiated a pilot study to (a) check the extent of coding that can be done from claim forms; (b) discover the problems confronting workmen's compensation boards in using the S.I.C. code; (c) test the possibilities for uniformity in the "time-loss" definition for tabulating accidents; (d) determine which of several possible employment estimates would be most useful; (e) attempt separation of injuries (with equivalent employment) by jurisdictional control (i.e., federal or provincial government departments); and (f) hopefully, to indicate the usefulness of incidence data.

In addition to its commitment to the pilot study, Statistics Canada is prepared to consider giving aid with industrial coding and possibly tabulating further claim reports or consolidating provincial tabulations which are reconcilable.

The Central Classifications Staff of Statistics Canada has agreed to serve as a central agency providing rulings on the classification of work injuries where they are needed. This staff has recently produced a paper on classifications using the Z-16-2 which will be distributed

to provincial workmen's compensation boards. Statistics Canada is also making available lists of establishments with Statistics Canada industry classifications to provincial boards or departments of labour on request. The Labour Division is providing a liaison service for tracing apparent mismatches. The role of co-ordinator may be a new trend for Statistics Canada, particularly if the list matches prove successful. It could allow for a wider use of Statistics Canada data for outside computer analysis and an accompanying reduction in the reporting burden for business.

FEMALE EARNINGS IN MANUFACTURING: A COMPARISON WITH MALE EARNINGS

Neil MacLeod*

It is a well-established fact that female workers in Canada generally earn less than male workers. The purpose of this study was to examine the relative earnings of female employees in manufacturing industries as well as to look for possible relationships between pay differentials and (1) the importance of female employment and (2) the level of wages paid. The study does not purport to investigate why differential earnings exist for the very good reason that the necessary data on occupational mix, age, education and experience do not exist. The same data gaps preclude comment on whether equal pay for equal work prevails.

Source data were surveys conducted by the Labour Division for the publication *Earnings and Hours of Work in Manufacturing* (Catalogue 72-204 Annual) (Ottawa: Information Canada). Industrial comparisons were made using 3-digit Standard Industrial Classification (S.I.C.) groups for 1967 and combined groupings for trend analysis for the period 1946-68. A two-group occupational split was used: wage-earners (production and related workers) and salaried employees (office and related workers), with clerical workers selected from the latter for further examination.

For the purpose of this study, the percentage of average female to male earnings is called the female pay ratio. The female employment ratio is similarly defined, i.e., the number of female employees per 100 male employees.

Wage-earners

In manufacturing, males in the wage-earning category outnumber the females by more than three to one. In 1967, the average hourly earnings were lower in all industrial groups but the amount of the difference varied considerably. Table 1 presents the female pay ratios for 64 industries ranked accordingly. The ratios range from a high of 86% in tobacco products to a low of 57% in commercial printing. The listing did not reveal any visible pattern of groupings, e.g. industries requiring muscle power, technical skills, durable goods industries, etc. Other factors were subject to statistical testing.

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TABLE 1. Manufacturing Industries Ranked by Pay Ratio, Level of Female Earnings and Employment Ratio for Wage-earners: Canada, 1967

S.I.C. class	Industry	Female to male average hourly earnings		Rank by level of female average hourly earnings	Rank by female to male employment ratio
		Pay ratio	Rank		
		I	II	III	IV
		%			
153	Tobacco products	86.05	1	1	11
201	Spun yarn and fabrics (synthetic).....	85.87	2	45.5	30
332	Major appliances (including non-electric).....	85.33	3	7	49
161	Rubber footwear	83.84	4	38	15
193-7	Woollen yarn and cloth.....	83.60	5	45.5	19
334	Household radios and televisions	83.25	6	30	12
261	Household furniture	82.99	7	41	42
123-5	Grain mill products.....	82.70	8	15	17
111	Fish products	82.24	9	64	24
291	Iron and steel mills	79.56	10	2	64
321	Aircraft and parts	79.17	11	5	59
163	Tires and tubes.....	78.91	12	3	58
229	Miscellaneous textiles.....	78.34	13	35	6
183	Cotton yarn and cloth.....	78.08	14	33	25
101	Slaughtering and meat processing	77.22	15	9	36
239	"Other" knitting mills.....	76.06	16	55.5	4
356	Glass and glass products	75.56	17	12.5	32
143	Distilleries	75.17	18	6	26
231	Hosiery.....	74.87	19	59	5

TABLE 1. Manufacturing Industries Ranked by Pay Ratio, Level of Female Earnings and Employment Ratio for Wage-earners: Canada, 1967 — Concluded

S.I.C. class	Industry	Female to male average hourly earnings		Rank by level of female average hourly earnings	Rank by female to male employment ratio
		Pay ratio	Rank		
		I	II	III	IV
333	Electrical wire and cable	74.81	20	14	55
330	Miscellaneous electrical products	74.68	21	27	16
275	Paints and varnishes	74.10	22	18.5	51
336	Electrical industrial equipment	73.65	23	12.5	37
206	"Other" food products	73.36	24	48.5	40
211	Office and business machines	73.38	25	8	35
237	Luggage, handbag and small leather goods	72.92	26	59	8
335	Assembling (motor vehicles)	72.37	27	4	62
220	Veneer and plywood mills	72.11	28	22.5	41
232	Shoes, except rubber	71.94	29	57	10
200	Saw, shingle, and planing mills	71.72	30	28.5	63
201	Filament yarn and staple fibres	71.03	31	25	39
212	Fruit and vegetable canners and preservers	70.77	32	61	18
300	Generators, transformers and equipment	70.38	33	21	20
208	"Other" paper products	70.57	34	33	28
204	Shoe, shoe and clothing mills	70.55	35	59	54
284	Pharmaceuticals and medicines	70.20	36	25	17
207	Cardboard	69.77	37	52.5	9
283	Chemical and allied products	69.14	38	18.5	13
285	Plastic, synthetic, and other	68.75	39	50	22
203	Iron foundries	68.10	40	20	61
205	Biscuits	68.24	41	42.5	7
200	Soap and cleaning compounds	68.24	42	11	33
201	Soft drink	68.24	43	54	57
200	Dairy products	67.57	44	48.5	50
264	"Other" paper converters	67.34	45	36.5	23
260	Men's clothing	67.11	46	55.5	3
260	Wool and more products	67.04	47	22.5	44
220	Textiles	66.96	48	52.5	31
261	Wool products	66.67	49	45.5	48
260	Textile mill - textile	66.54	50	62	1
203	Sporting goods and toys	65.80	51	63	14
208	Hardware, tools and cutlery	66.49	52	36.5	34
262	Non-ferrous metal rolling, casting	65.30	53	28.5	53
264	Metal stamping, pressing, and coating	64.17	54	33	46
261	Paper boxes and bags	64.54	55	40	29
211	Miscellaneous food and beverages	64.10	55	25	56
211	Food and paper mill	64.25	57	10	60
209	Miscellaneous food processing	63.16	58	39	45
202	Food and beverages	61.32	59	17	38
200	Ornamental and architectural services	61.06	60	51	52
209	Miscellaneous food products	61.40	61	45.5	21
204	Food and beverages	60.40	62	42.5	2
200	Miscellaneous services and products	61.01	63	16	43
200	Services and products	60.54	64	31	27

Industries employing few women might tend to pay them more in accordance with their male staff or, alternatively, those with a high proportion of female staff might make less use of pay differentials. However, statistical analysis did not indicate any regular relationships between the ratios for female earnings and for female employment.¹ This lack of correspondence may also be seen in the last column of Table 1 where the female employment ratio is ranked, with no noticeable clustering at either end of the ranking based on pay ratio.

The possibility of variation according to the wage scale was also considered. Does the pay ratio differ significantly when one moves from a high-pay industry to a low-pay industry? Again, statistical analysis indicated not.² Lack of cluster may also be noted in column 3 (Table 1) where the industries are ranked according to the level of female hourly earnings.

¹ An analysis of variance was performed on the female pay ratio partitioned into three groups according to the value of the female employment ratio. The F test was highly insignificant at the .025 level. Due to space limitations, the detailed tabulations on which the statistical analysis were based have been replaced by rankings which give a more visible picture.

² The analysis of variance, performed on the pay ratio of three groups according to the level of average hourly earnings, produced an insignificant F test at the .025 level.

Distribution by province indicated that there were differences in pay ratios for manufacturing as a whole (see Table 2). Women appeared to be paid more like men in Alberta and Saskatchewan, but less so in the Atlantic Provinces, especially in Newfoundland. As with industrial classifications, the ranking appeared to have little connection with the level of earnings or the employment ratio. The grouping of the Atlantic Provinces in the bottom ranks suggests that some of the provincial difference might be caused by social structures or level of economic activity. However, the lack of geographical pattern for the other provincial ranks suggests that much of the variance might be due to industrial mix. It was difficult to eliminate the effect of this mix because no industries were significant in all provinces.

At the major group level, it was possible to segregate the food and beverage industry, getting a different provincial ranking from total manufacturing. However, even at this level, the Atlantic Provinces would be heavily represented by fish processing while the Prairie Provinces would tend towards slaughtering and meat processing. Some more direct comparisons were possible between Quebec and Ontario, using finer industrial detail, and for these comparisons the pay ratio did not appear to be strongly influenced by provincial location. For example, Quebec had higher pay ratios in textiles, knitting and clothing but Ontario was higher in tobacco products and processing.

TABLE 2. Provinces Ranked by Pay Ratio, Level of Female Earnings, and Employment Ratio for Wage-earners in Manufacturing: Canada, 1967

Province	Female to male earnings		Level of female earnings		Rank by female to male employment ratio	Rank by food and beverages pay ratio
	Pay ratio	Rank	Average hourly earnings	Rank		
	I	II	III	IV	V	VI
	%		\$			
Alberta	64.8	1	1.69	3	6	1
Saskatchewan	64.0	2	1.65	4	7	2
Quebec	63.6	3	1.54	5	1	5
Ontario	61.2	4	1.72	2	3	7
British Columbia	61.0	5	1.94	1	9	8
Manitoba	59.8	6	1.46	6	2	6
Nova Scotia	54.7	7	1.16	8	4	9
New Brunswick	53.6	8	1.19	7	5	3
Newfoundland	44.1	9	0.97	9	8	4

Clerical and Related Employees³

The finest occupational grouping available — clerical and related — was still not sufficiently select to indicate job discrimination. However, these data do show what has been happening in an area where male-female jobs are more nearly equal in number and more nearly alike (see Table 3). With one exception (tires and

tubes), female clerks consistently averaged less pay than male clerks and the range in the pay ratios was similar to that shown previously for wage-earners: from 89% down to 55%. Again no significant relationships were found between pay and employment ratios or between the pay ratio and the level of female earnings.⁴ Nor was the pay ratio similar for wage-earners and clerical workers in the same industry.

³ The study also attempted to analyse the segment of the salaried group remaining after the clerical occupations were removed. However, the number of females remaining was insufficient to maintain representative averages.

⁴ Analysis of variance performed on the pay ratio showed no significant relationship at the .05 level.

TABLE 2 Manufacturing Industries Ranked by Pay Ratio, Level of Female Earnings and Employment Ratio for Clerical and Related Workers: Canada, 1967

S.I.C. class	Industry	Female to male average hourly earnings		Rank by level of female average hourly earnings	Rank by female to male employment ratio
		Pay ratio	Rank		
		I	II	III	IV
		%			
163	Tires and tubes	108.9	1	1	64
318	Office and store machinery	88.7	2	9	1
323	Assembling (motor vehicles)	80.0	3	2	68
356	Glass and glass products	78.2	4	25	35
128	Biscuits	77.2	5	28.5	32
375	Paints and varnishes	76.9	6	31.5	52
123-5	Grain mill products	76.2	7.5	49.5	36
374	Pharmaceuticals and medicines	76.2	7.5	16	2
252	Veneer and plywood mills	75.5	9	13	31
229	Miscellaneous textiles	75.1	10	34.5	5
153	Tobacco products	73.9	11	5	22
143	Distilleries	72.9	12.5	3	54
305	Wire and wire products	72.9	12.5	25	40
145	Breweries	72.8	14	4	24
244	Women's clothing	72.6	15.5	25	6
273	Paper boxes and bags	72.6	15.5	8	38
321	Aircraft and parts	72.4	17.5	14	43
376	Soaps and cleaning compounds	72.4	17.5	10	27
112	Fruit and vegetable canners and preservers	71.5	19	40	17
393	Sporting goods and toys	70.7	20	63	19
351	Clay products	70.6	21	43.5	30
251	Saw, shingle and planing mills	70.2	22.5	37.5	63
271	Pulp and paper mills	70.2	22.5	7	65
294	Iron foundries	70.0	24	49.5	39
381	Plastics	69.9	25.5	57	11
385	Plastic fabricators, n.e.s.	69.9	25.5	52	16
101	Slaughtering and meat processing	69.5	27	22	60
141	Soft drinks	69.3	28	55	18
139	Miscellaneous food products	69.2	29	20.5	8
304	Metal stamping, pressing	69.0	30	18.5	46
296-8	Non-ferrous metal rolling, casting	68.9	31	18.5	42
291	Iron and steel mills	68.6	32.5	11.5	61
332	Major appliances	68.6	32.5	31.5	55
311	Agricultural implements	68.5	34	37.5	62
381	Scientific and professional equipment	68.4	35	20.5	29
180	Furniture	68.3	36.5	28.5	33
266	Other furniture	68.3	36.5	37.5	34
325	Parts and accessories (motor vehicle)	67.8	38	11.5	50
2012	Filament yarn and staple fibres	67.6	39	59.5	67
2011	Spun yarn and fabrics	67.4	40.5	67	37
347	Concrete products	67.4	40.5	23	45
239	Other knitting mills	67.3	42	64.5	4
339	Miscellaneous electrical products	67.1	43	46.5	28
306	Hardware, tools and cutlery	67.0	44	33	20
338	Electrical wire and cable	66.8	45	37.5	72
309	Miscellaneous metal fabricating	66.7	46	46.5	41

TABLE 3. Manufacturing Industries Ranked by Pay Ratio, Level of Female Earnings and Employment Ratio for Clerical and Related Workers: Canada, 1967 - Concluded

S.I.C. class	Industry	Female to male average hourly earnings		Rank by level of female average hourly earnings	Rank by female to male employment ratio
		Pay ratio	Rank		
289	Printing and publishing	66.3	47	41.5	23
131	Confectionery	66.0	48	41.5	7
105-7	Dairy products	65.9	49.5	70	10
301	Boilers and plate works	65.9	49.5	59.5	53
378	Industrial chemicals	65.6	51	28.5	44
254	Sash, door and flooring mills	65.5	52	61.5	59
315	Miscellaneous machinery and equipment	65.1	53	43.5	58
286	Commercial printing	65.0	54.5	34.5	9
295	Smelting and refining	65.0	54.5	16	70
307	Heating equipment	64.9	56	53.5	47
243	Men's clothing	64.6	57	58	14
161	Rubber footwear	64.5	58	72	49
334	Household radios and TV	64.0	59	46.5	48
365	Petroleum refineries	63.9	60	6	71
274	Other paper converters	63.3	61.5	28.5	21
179	Luggage, small leather goods	63.3	61.5	64.5	13
261	Household furniture	63.2	63	61.5	25
111	Fish products	62.8	64	73	51
174	Shoes, excluding rubber	62.6	65	66	26
303	Ornamental and architectural metals	62.5	66	56	56.5
193-7	Woollen yarn and cloth	61.3	67	68.5	12
327	Shipbuilding and repairs	61.2	68	53.5	73
183	Cotton yarn and cloth	60.9	69	71	15
302	Fabricated structural metals	60.8	70	51	69
335	Communications equipment	58.9	71	16	56.5
336	Electrical industrial equipment	58.5	72	46.5	66
231	Hosiery	54.9	73	68.5	3

The hypothesis that the pay ratio might vary with mechanization was ruled out by testing the pay ratio of an industry against its wage-earner to clerical employment ratio.⁵

One line of investigation had more positive results. Might a relationship be found between the proportion of female clerks on staff and the level of salaries paid by an industry? Table 4, which ranks the two series, suggests that an inverse relationship does exist.⁶ This is not readily attributable to higher skill or training of males, unless there is more variation among clerical workers in these respects than we assume. Hence, it would appear

⁵ Analysis of variance performed on the pay ratio was insignificant at the .05 level.

⁶ A simple correlation coefficient of $-.832$ between the employment ratio and total average weekly salary was significantly different from zero at the .05 level.

that either there is a strong tendency for female clerical employees to concentrate in the low paying industries, or the employment of a large number of women tends to depress the salary level in that industry.

Pay Ratio Trends 1946 - 68

Table 5 presents data for selected years and industries on the female-male pay ratio for wage-earners. Apart from two industries (tobacco products and leather products) there is no substantial improvement to record and in four of the twelve industries in the table, females have lost ground. Overall, for manufacturing as a whole, the pay ratio actually declined and the same is true for the main components - durable goods and non-durable goods.

Pay ratios for clerical workers (see Table 6) have increased somewhat more on the average, and by as

TABLE 4. Major Groups in Manufacturing Ranked by Employment Ratio and Earnings, Clerical and Related Employees: Canada, 1967

S.I.C. Class	Industry	Employment ratio	Rank	Average weekly earnings	Rank
		I	II	III	IV
		%		\$	
230-239	Knitting mills	253.6	1	77.53	21
240-249	Clothing	208.2	2	84.84	20
280-289	Printing, publishing and allied industries	170.0	3	86.67	18
380-389	Miscellaneous manufacturing industries	149.2	4	92.49	14
150-153	Tobacco processing and products	143.5	5	96.53	11
170-179	Leather products	139.6	6	85.10	19
		137.8	7	86.33	17
370-379	Chemicals and chemical products	132.6	8	93.88	13
100-139	Food	128.0	9	88.63	16
		118.5	10	99.66	6
260-269	Furniture and fixtures	119.3	11	89.18	15
360-369	Petroleum and coal products	100.6	12	108.81	3
310-318	Machinery other than electric	92.0	13	99.30	7
270-274	Paper and allied products	89.7	14	104.65	5
340-359	Non-metallic mineral products	84.6	15	95.91	12
300-309	Metal fabricating	81.3	16	98.56	10
250-259	Wood products	80.6	17	99.08	9
		78.2	18	99.12	8
		71.8	19	107.60	4
		70.8	20	110.39	2
320-329	Transportation equipment	66.0	21	114.78	1

TABLE 5. Female to Male Average Hourly Earnings Ratio for Wage-earners in Manufacturing for Selected Years and Industries: Canada Total

Industry	Year				
	1948	1953	1958	1963	1968
	per cent				
Total manufacturing	N/A	61.9	60.0	59.9	60.4
Food and kindred products	64.8	64.8	66.0	64.5	68.3
Tobacco processing and products	77.6	79.7	81.5	84.4	88.9
Textile mill products	67.3	70.6	65.1	64.7	62.7
Leather products	65.9	67.5	67.9	69.2	72.3
Textiles	77.4	77.8	76.6	76.5	79.9
Apparel and accessories	76.7	80.7	81.8	79.0	76.7
Paper and allied products	56.0	55.3	55.0	54.8	56.2
Printing and allied products	51.7	51.1	51.1	50.9	55.7
Chemical and allied products	73.7	77.8	76.3	68.5	63.9
Plastics and allied products	75.2	72.8	71.8	69.6	72.9
Miscellaneous manufacturing products	73.7	66.9	71.7	73.0	75.1
Chemical and allied products	59.2	60.8	59.1	59.9	58.5
Other goods	N/A	72.7	70.7	67.4	66.2
Non-durable goods	N/A	61.0	58.9	59.2	60.3

much as 10% in a few industries. But much more substantive increases have occurred in the employment of female clerical workers (see Table 7), and there appears to be no relationship between the two sets of changes.

Some industries with large employment gains show improvement in the pay ratio; others which have gained as much or more in terms of employment show a declining pay ratio.

TABLE 6. Female to Male Average Weekly Earnings Ratio for Clerical and Related Workers in Manufacturing for Selected Years and Industries: Canada Total

Industry	Year			
	1951	1957	1963	1968
	per cent			
Total manufacturing	62.2	62.7	66.2	65.1
Food and beverages	65.0	66.0	67.3	66.5
Tobacco and products	59.2	72.8	85.7	71.3
Rubber products	65.9	65.9	68.1	77.4
Leather products	62.2	64.1	64.4	60.5
Textiles	61.4	63.0	69.4	65.9
Clothing	64.3	67.8	69.3	66.1
Furniture	59.5	64.6	66.0	65.1
Paper and allied products	59.2	62.9	68.0	70.3
Printing and related products	66.2	68.3	72.4	65.0
Transportation equipment	62.5	60.8	67.8	71.5
Electrical products	61.0	61.3	60.6	61.5
Non-metallic mineral products	64.6	65.6	67.4	68.0
Chemicals and chemical products	69.7	69.2	73.6	68.1
Durable goods	61.0	61.5	64.9	65.6
Non-durable goods	64.1	65.4	69.1	66.0

TABLE 7. Female to Male Employment Ratio for Clerical and Related Workers in Manufacturing for Selected Years and Industries: Canada Total

Industry	Year			
	1951	1957	1963	1968
	per cent			
Total manufacturing	71.4	76.2	92.6	109.5
Food and beverages	70.6	90.7	105.8	149.5
Tobacco and products	91.8	120.6	184.9	142.0
Rubber products	70.1	75.2	84.2	81.3
Leather products	67.1	97.4	108.9	171.9
Textiles	86.8	94.8	133.1	158.4
Clothing	110.9	155.6	182.8	291.3
Furniture	80.2	108.5	100.9	91.4
Paper and allied products	64.2	67.4	80.3	83.8
Printing and allied products	94.5	136.9	166.1	185.6
Transportation equipment	50.8	45.8	58.3	64.3
Electrical products	63.3	61.5	71.6	86.7
Non-metallic mineral products	68.9	66.1	67.2	93.6
Chemicals and chemical products	104.0	115.8	149.8	128.3
Durable goods	59.0	57.8	68.2	79.7
Non-durable goods	84.4	102.7	123.3	143.6

Summary

Although one cannot conclude that women fail to get equal pay for equal work, it is clear that they are getting the lower-paying jobs. Moreover, this is a rather "universal phenomenon" in the sense that the pay ratio is independent of employment ratios, size of earnings, relative size of office staff or provincial location.

On the whole no improvement has been made over the 22-year period examined. Although pay ratios have

risen in certain industries in certain time periods, there have been very few industries which showed significant improvement. The situation is as stagnant as a polluted river. The consistency of the pay differentials is particularly interesting in view of the large increases in the number of women working and the technological advances which have opened up new kinds of jobs and produced major changes in the nature of work performed in most, if not virtually all industries.

PERSONS AT WORK LESS THAN A FULL WEEK: SEASONAL PATTERNS

Peter Hicks*

Statistics on numbers of employees are often used as approximations of labour input in the economy. When using employment data for this purpose, analysts must keep in mind that employment statistics by themselves do not take account of the varying amounts of overtime worked nor the fact that a substantial and growing portion of the employed are at work less than a full work-week. Moreover, the number of persons not working a full week fluctuates greatly throughout the year. The seasonal patterns of part-time work and of absence from full-time jobs are the subject of this article.

On average in the past few years, about one quarter of Canada's employees worked less than a 35-hour week. This total is about equally divided between employees who regularly work on a part-time basis and employees who regularly work 35 hours or more (full-time employees) but who are absent from work in the reference week for such reasons as illness, job turnover, or vacation.¹ The table below shows the main categories of persons working less than full-time.

* Labour Division.

¹ These series have been discussed mainly in terms of underemployment or underutilization of manpower. For example, see Nand Tandan, "Underutilization of Manpower in Canada", *Special Labour Force Studies*, No. 8, Statistics Canada (Catalogue 71-513 Occasional) (Ottawa: Information Canada).

The table shows a strong growth in the per cent of employees who are at work less than a 35-hour week. Chart 1 illustrates this growth for part-time workers and for absence among full-time workers due to (a) short-time and turnover or (b) other reasons. The chart also shows that the series have pronounced seasonal patterns. This seasonal pattern is isolated in Chart 2 which plots the seasonal index for 1961, a mid-year in the 18-year series under review. The scale used in the chart for "other reasons" is reduced because of the much greater amplitude of seasonal variation in this series which results from the strong summer peak in vacation-taking.

The seasonal indices shown on the chart are calculated by a computer program² which divides a time series into three components: an underlying trend (including cyclical movements), an irregular component and a seasonal component. The seasonal indices show, in per cent terms, deviations from the trend that occur in different months because of seasonal fluctuations.³

² The X-11 version of the U.S. Census Method II uses 3 x 9 moving averages for calculating seasonal factors in most cases. For details see *The X-11 Variant of the Census Method II, Seasonal Adjustment Program*, Technical Paper No. 15, U.S. Department of Commerce, Bureau of the Census.

³ To take a concrete example, there were 107,000 persons absent from work in January 1961 because of short-time and turnover. The computer calculated that the trend component of this total was 87,000. The irregular ratio was calculated as 101.3 and the seasonal ratio as 120.9 (87,000 x 1.013 x 1.209 = 107,000). It is this 120.9 that is plotted in Chart 1.

TABLE 1. Employees by Main Reason for Working Less than 35 Hours, Annual Averages for 1953, 1961 and 1970

	1970	1961	1953	1970	1961	1953
	000			per cent		
Total employees	7,879	6,055	5,235	100.0	100.0	100.0
At work 35 hours or more ¹	5,666	5,002	4,768	71.9	82.6	91.1
At work less than 35 hours ¹	2,213	1,053	467	28.1	17.4	8.9
At work less than 35 hours ²	1,686	908	455	21.4	15.0	8.7
Part-time employees	971	476	197	12.3	7.9	3.8
Full-time employees, absent because of short-time and turnover	86	77	48	1.1	1.3	0.9
Short-time	59	49	32	0.7	0.8	0.6
Turnover	28	27	16	0.4	0.4	0.3
Full-time employees, absent because of other reasons ²	631	355	211	8.0	5.9	4.0
Vacation	278	170	72	3.5	2.8	1.4
Illness	195	100	85	2.5	1.7	1.6
Industrial dispute	30	--	--	0.4	--	--
Bad weather	35	21	17	0.4	0.3	0.3
Miscellaneous ²	93	60	32	1.2	1.0	0.6

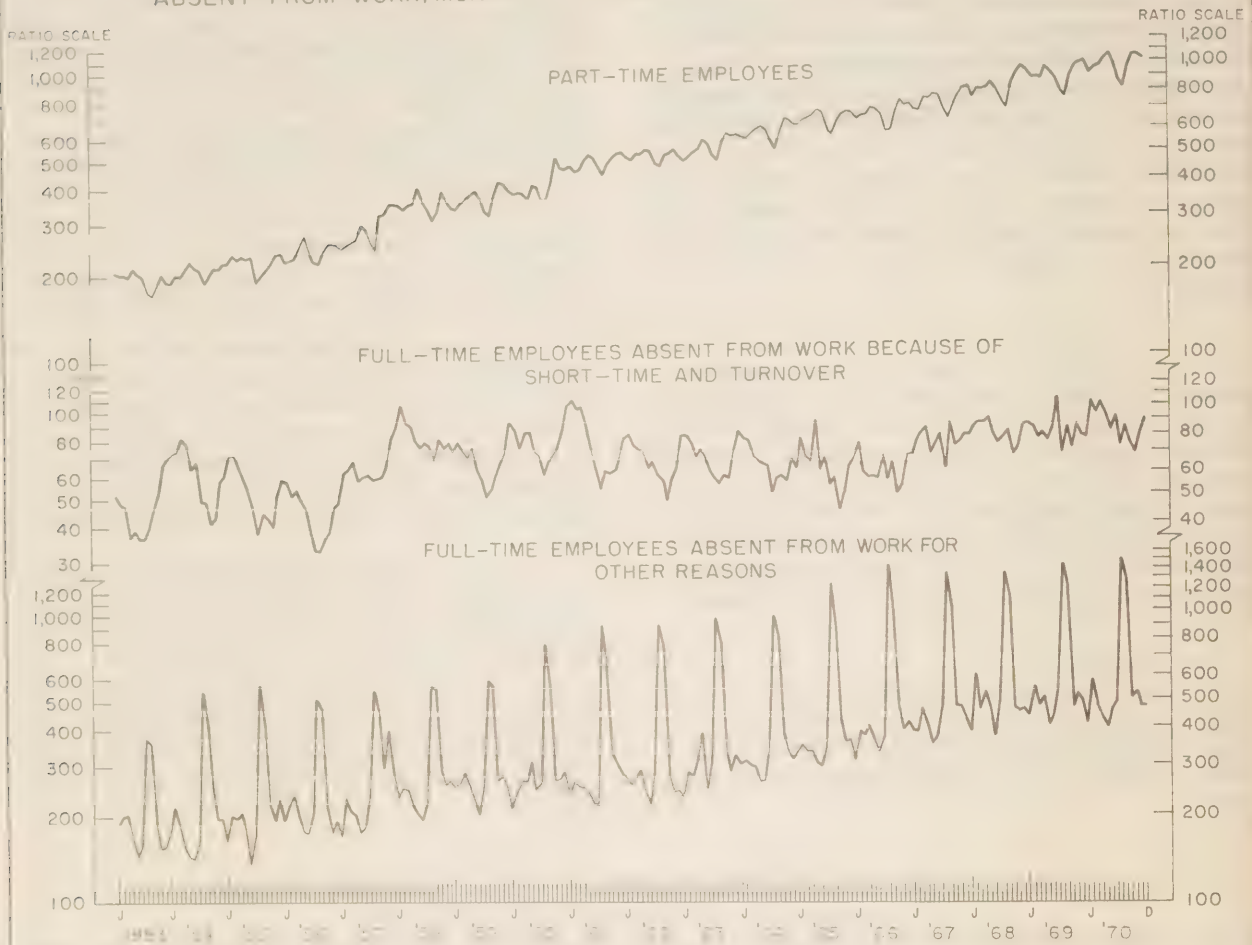
¹ There were more persons absent on holidays in 1970 because of the inclusion of Remembrance Day, Thanksgiving and the May 24th holiday. Thanksgiving and Remembrance Day also affected 1961 figures, although Remembrance Day is a Saturday that year.

² Adjustment made to remove the effect of public holidays.

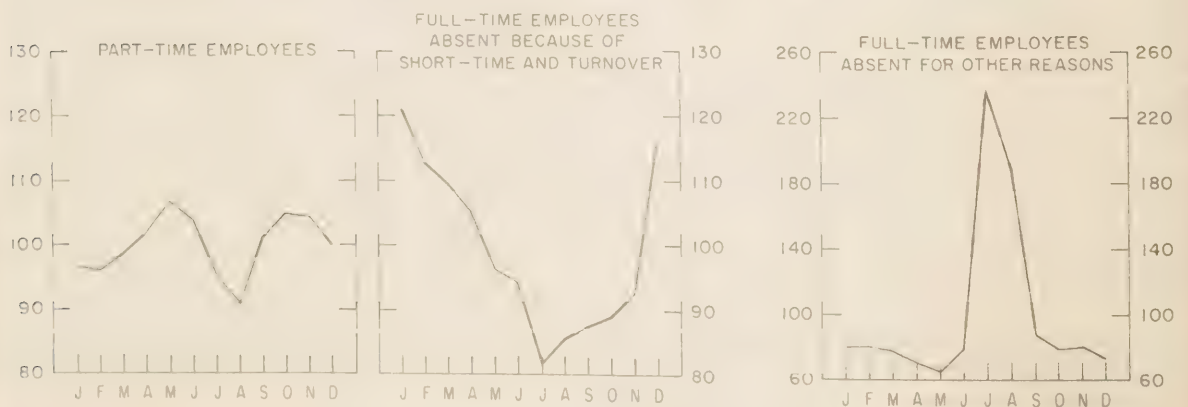
-- estimate less than 10,000.

Source: *The Labour Force*, Statistics Canada (Catalogue 71-001 Monthly) (Ottawa: Information Canada).

PART-TIME EMPLOYEES AND NUMBER OF FULL-TIME EMPLOYEES ABSENT FROM WORK, MONTHLY ESTIMATES (IN THOUSANDS), 1953 - 1970



PART-TIME EMPLOYEES AND ABSENCE AMONG FULL-TIME EMPLOYEES, SEASONAL INDICES, 1961



Seasonal fluctuations are those regularly recurring annual variations in a series that are associated with such factors as the effect of the climate on agricultural employment in winter or the effect of school holidays on the influx of students to the labour market. Seasonal patterns change over time and seasonal variations may therefore be defined in terms of "a regularity in behaviour over successive periods of twelve months which is changing in a systematic manner over longer periods".⁴ While the method used in estimating this moving seasonality is adequate for most series, problems occur, as is pointed out below, in handling series which are as irregular as many of those presented here, and the resulting seasonal indices must be used with caution.

Part-time Employees

Part-time workers are defined in the Statistics Canada monthly Labour Force Survey (the source of all data in this article) as those who *usually* work less than 35 hours a week. This definition has been used since 1953 when the survey was first carried out on a monthly basis and has the consequent virtue of historic consistency, although it is becoming increasingly out-dated as more and more groups of "full-time" employees (such as some teachers and government employees) regularly work less than 35 hours a week. The table shows a dramatic tripling since 1953 in the percentage of employees who usually work part-time.

The seasonal pattern for regular part-time employment is unusual in that there are two peaks and two troughs in the year. The peaks occur in April and November. There is a shallow trough in January and a deep one in August. Similar patterns occur for both men and women, although the amplitude of variation is greater among men. Among men, the summer decline in part-time employment is mainly due to students leaving the part-time jobs they held throughout the school year. Among women, the summer dip is due partly to students leaving their part-time jobs and partly to married women leaving the labour force in the summer. In 1970, women accounted for about two thirds of all part-time workers. The greater amplitude of seasonal variation among men is caused by the greater proportion of students holding part-time jobs in the male total. In May 1970, over half the male part-time workers reported that going to school was their major activity, while for women the figure was about 15%. Some 60% of the female part-time workers were married women over the age of 25.

Chart 3, which shows seasonal patterns for men and women, also compares changes from 1954 to 1969. The series that were seasonally adjusted extend from January 1953 to December 1970. But the seasonal ratios

calculated for the end years are not used in this article because the seasonal adjustment program, being based on a moving average technique, gives somewhat less reliable adjustments at the beginning and end of a series where it is not possible to calculate a centred average. The chart shows that the basic pattern remains the same from 1954 to 1969. The August trough has become a little deeper during the period and the autumn peak has grown marginally. The decline in May and the gains in September and October occurred in the 1950's. The December gains took place mainly in the 1960's.

Full-time Employees Absent Because of Short-time and Turnover

Absence among full-time employees is divided into two groups: those absent from work because of short-time and turnover and those absent for a variety of other reasons. Short-time and turnover are treated as a special class because absence from work for these "economic" reasons involves weakening of job attachments. In most cases of turnover — losing or finding a job — the job attachment has been completely cut. Job attachments may be fairly strong in the case of employees working short-time because of, for example, a shortage of material in their factory. Other cases, such as a layoff where a person expects to be recalled in the near future, are more ambiguous, but the Labour Force Survey counts all persons laid off from their job for the whole reference week as being unemployed because of the uncertain nature of their job attachment. This means that the figures in the table for short-time and turnover include only employees working from 1 to 34 hours. Those in this category who did not work at all in the reference week are counted as unemployed. Persons who are absent for other reasons such as illness, vacation or strike usually have a job to return to and they are included as employed whether they worked 1 - 34 hours or whether they were not at work at all in the reference week. The table shows a sizeable gain of about 80% from 1953 in the number of persons who lost work because of short-time and turnover. In the same period, total employment increased by about 50%.

Short-time — Chart 4 examines the changing seasonal patterns of persons absent part of the week because of short-time. In the 1950's the pattern was the familiar one of a trough in summer and a peak in winter. By the late 1960's, the same basic pattern remained except that an isolated peak had arisen in August and a slight trough had occurred in December. Roughly the same patterns exist for men and women although the amplitude of the seasonal pattern is greater for men and the pattern is less irregular. There are more than twice as many men as women in this category and part of the greater irregularity of the indices for women is due to the small size of the estimate. The August peak is mainly the result of short-time in manufacturing industries such as fish processing. Little significance can be attached to the emergence of the December trough because of the erratic nature of the series in December.

⁴ Stephen N. Marris, "The Treatment of Moving Seasonality in Census Method II", *Seasonal Adjustment on Electronic Computers*, Organization for Economic Co-operation and Development (1960), p. 261. This article outlines the technical problems associated with seasonal adjustment when there is a large moving seasonality.

CHART-3

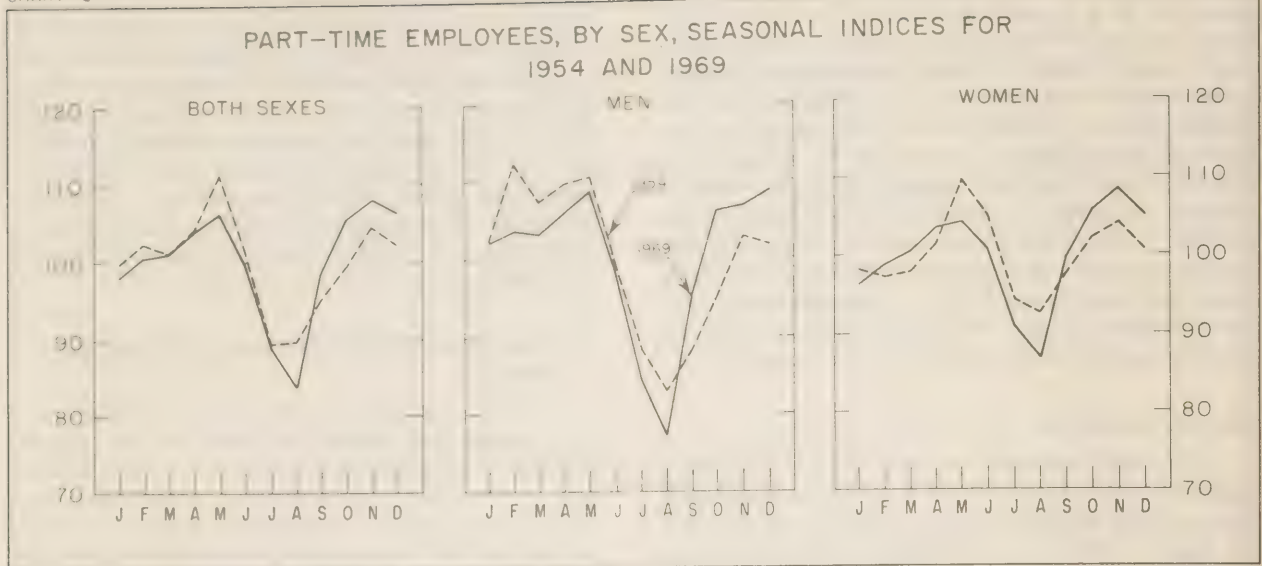
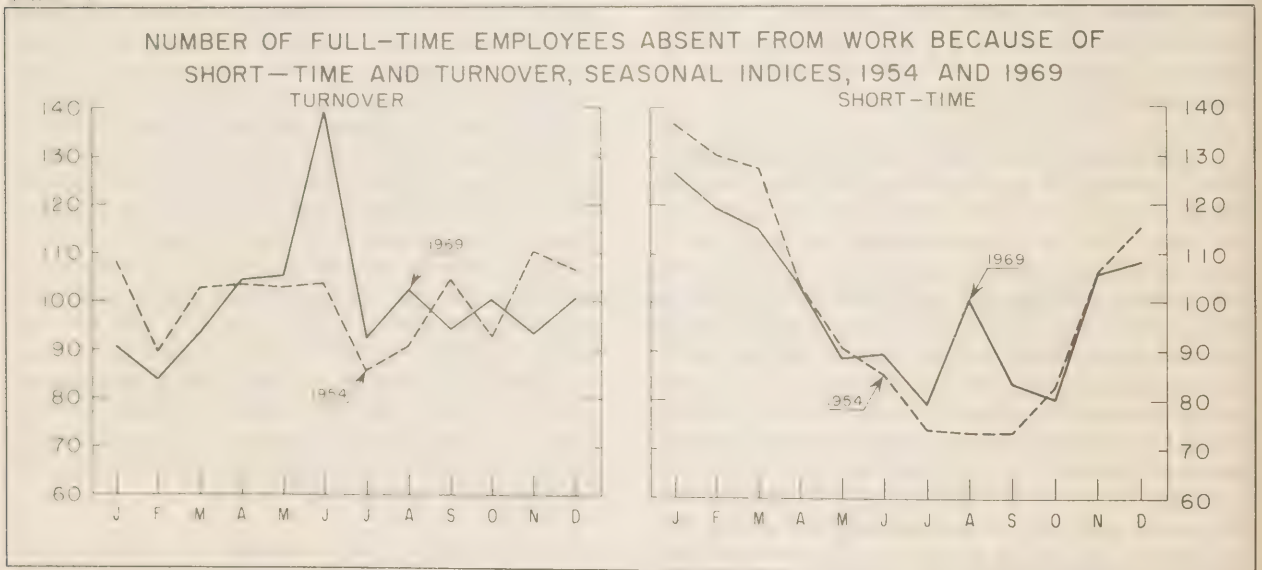


CHART-4



Turnover — Chart 4 shows that the main change since the mid-1950's in seasonal patterns in job turnover of full-time employees has been the emergence of a high seasonal peak in June. The pattern for both men and women in both time periods is quite erratic, particularly in the autumn. The cause of this choppiness is the conflicting nature of the seasonal patterns of the three components of turnover: persons laid off, persons who have lost their job and persons who found a job in the reference week. The new June pattern arises in the "finding work" category which is due to the growing influx of students into the labour force at the end of the

school year. In June 1970, close to half the people reporting that they had found a job in June were going to school in May. An August peak in losing jobs is mainly caused by students leaving the labour market at the end of the summer. A jump in layoffs also occurs in August of many years.

Full-time Employees — Absent for Other Reasons

The amount of absenteeism among full-time workers for other reasons (often referred to as "non-economic" reasons) has grown very rapidly since the 1950's. Moreover, the data used in this article have been

adjusted to remove the effect of public holidays, an important cause of short work-weeks. Public holidays are not covered consistently by the Labour Force Survey. The twelve labour force reference weeks are spread throughout the year in such a way that some holidays are never included (Christmas and New Years) while others are occasionally included (Easter and Thanksgiving). When a person is absent from a job for more than one reason, such as illness and a public holiday, he is included in the miscellaneous category. In adjusting the data to remove the effects of a public holiday it was not possible to reallocate those employees back into other categories.

Vacation — Not unexpectedly, the series that show the greatest amplitude in seasonal patterns are those for employees absent from work for all or part of the week because of vacation-taking. Chart 5 shows that the seasonal pattern in vacation-taking has changed very little, with July and August being the overwhelmingly popular months for vacations throughout the period under review. In fact, the pattern has become slightly more peaked with July increasing slightly at the expense of August and June. The summer peak is somewhat higher for women than for men. The same basic pattern holds for people absent the entire week and those absent only part of the week, although part-week absence is not quite as concentrated in the summer months.

Illness — There is a pronounced seasonal element in the amount of time lost from work by full-time employees because of illness. Chart 6 shows a similar pattern for men and women with the amplitude of seasonal variation being somewhat greater for women. In 1954 the peak months for women were February and March. By 1969, January had become the highest month. This growth in the January time-loss among women began in the early 1960's and particularly high January peaks were recorded in 1969 and 1970. For men as well, the annual peak has been in January in the years 1968, 1969 and 1970 and, although it is not reflected in the seasonal factors, this could well be considered to be the beginning of a changed seasonal pattern. Because of the irregular nature of the series, the chart still shows the seasonal peak in February and treats the recent January movements for men as irregular rather than seasonal in nature.

Chart 6 shows the emergence of a small peak in June. Some part of this may be due to the relative decline in vacation-taking among men in June. If a person is ill during his vacation period, he is counted as being absent from work because of vacation, not because of illness. This illustrates the care that must be taken in using these data. The figures on absence from work because of illness reflect not only the incidence of illness among employed persons, but also certain institutional and methodological factors. For example, the seasonal pattern for the overall incidence of illness would doubtless have a shallower summer trough than that shown in Chart 6.

Chart 7 compares persons absent for the whole week due to illness and those absent for part of the week. The amplitude of seasonal variation is greater for persons missing only part of the work week, no doubt because of the greater influence of the climate on such shorter duration illnesses as colds or influenza.

Bad weather — Next to vacations, the largest amplitude of seasonal variation is in absence due to bad weather. Chart 8 shows that since 1954 the winter peak has changed from February to January and has grown higher. Also, an isolated peak in September in the chart for 1954 had disappeared by 1969. However, not too much reliance should be placed on these "changed" patterns because the series have been subject to several large irregular year-to-year fluctuations which means that any calculation of a "seasonal" pattern is bound to be arbitrary. For example, the September "peak" occurred only in the years 1954, 1956, 1958, 1961 and 1965. The estimates are too small to allow a meaningful examination of the patterns for men and women.

Industrial dispute — While fluctuations in the number of full-time employees absent from work because of strikes and lockouts are largely due to irregular factors, there has been a tendency in recent years for more employees to be away from work because of industrial disputes in the period May through October than in the winter half of the year. This "pattern" emerged during the second half of the 1960's. In the years around 1960 there was little variation in the series that could be attributed to seasonal factors. In the mid-1950's, there was some tendency for more industrial disputes to occur in the period from October to January.

Summary

The number of employees absent from work due to bad weather, short-time and illness follows the familiar pattern of a trough in summer and a peak in winter. The pattern of absence due to vacations is the opposite, with a very high summer peak which has little change over time. Absence because of job turnover has a choppy pattern over the year and is considerably influenced by entrants to the labour force at the end of the school year. The seasonal pattern for regular part-time employment is bi-modal with a main trough in the summer, peaks in the autumn and spring, and a secondary trough in winter.

Overall, the effect of vacation-taking predominates and fewer persons work a full work-week in summer than in other seasons. For example, in the five years from 1966 to 1970, persons working less than 35 hours represented 19% of total employees in January and 27% of employees in July. This indicates the problems of using statistics in numbers of employees (or even of hours paid for) as an indication of labour input or man-hours worked.

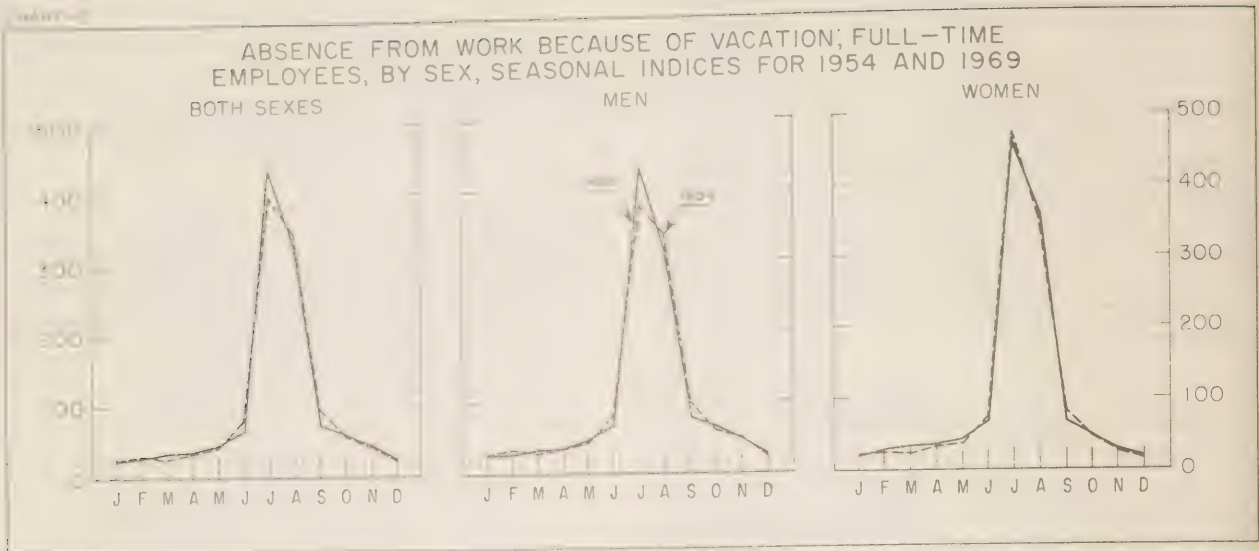


CHART-6

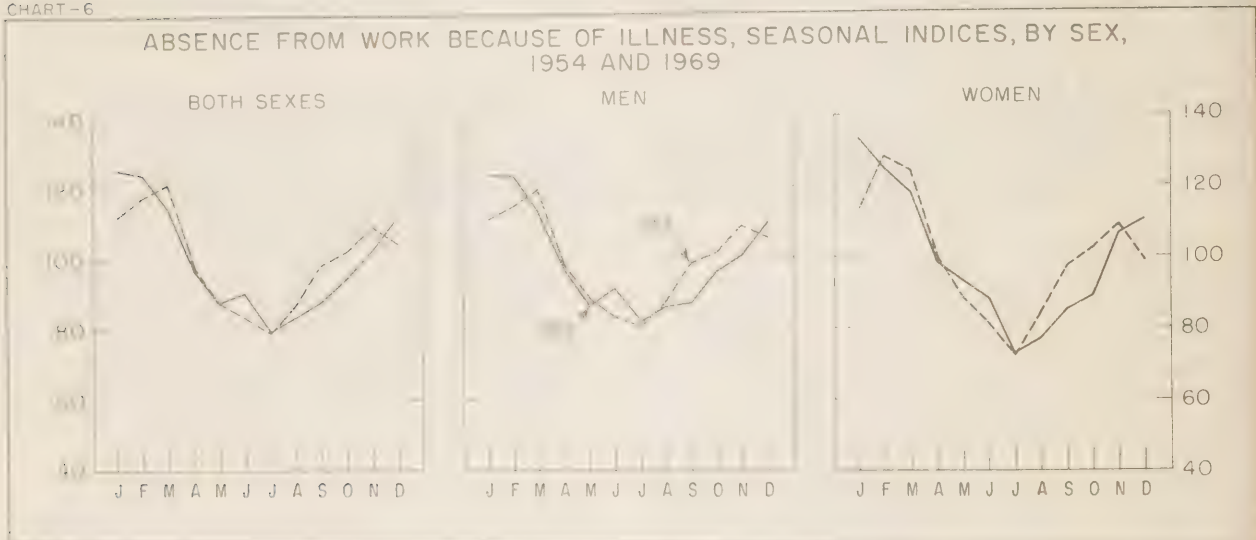


CHART-7

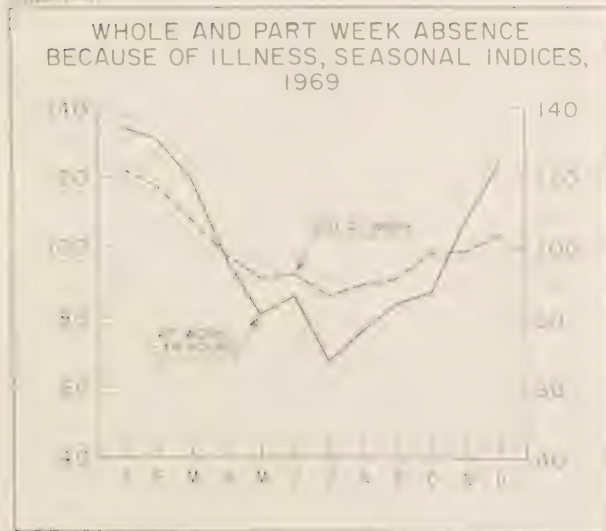
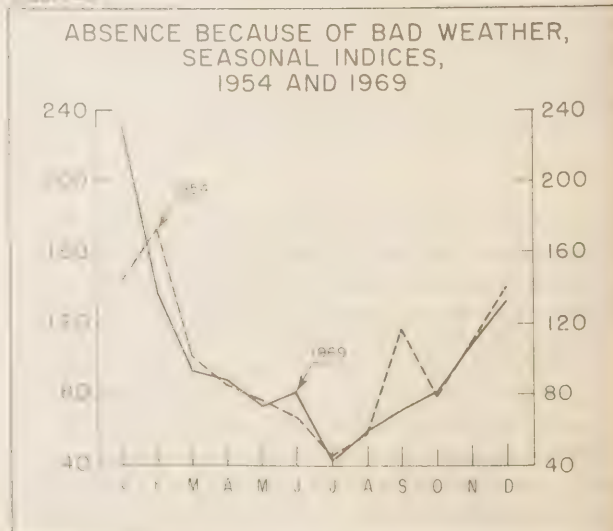


CHART-8



JOB SEARCH PATTERNS

Ian Macredie*

In January 1969 the Labour Force Survey was used to collect information on the work experience of the Canadian population during the twelve months of 1968.¹ As part of this survey, additional questions were put to persons with job-seeking experience to elicit the methods of search used, the timing of the search, and its outcome. This note reports on the findings.

Since the "job search" survey was confined to persons experiencing five or more weeks of unemployment, it does not, in fact, cover all job-seekers in 1968. Nevertheless, at just under 800,000 - which is 9% of all persons with labour force experience in the year - the surveyed population does represent a sizeable number. It is also heavily weighted by persons with extensive job-

seeking experience, more than half the total reporting anywhere from 14 up to 52 weeks of unemployment (see Table 1).

Time Elapsed before Looking for Work

Time elapsed was determined from the question: "How long after losing your job did you begin looking for another job?"² The estimates, cross-tabulated by sex and age, are given in Table 2 below.

For male seekers, more than 50% in each age group began searching "immediately" or one day after losing

² The loss of a job referred to is the one associated with the respondent's longest (or only) period of unemployment. The time elapsed question was not applicable to all persons in the survey group. Two per cent expected to be called to their former jobs and did not look for work. A further 13% had no previous job and a residual class of those who did not specify an elapsed time or did not look for some other reason made up 6%. Accordingly, the number in the "time elapsed" class covers 79% of those surveyed.

* Manpower Research and Development Section, Labour Division.

¹ Analysis of these data will be made available in a forthcoming study by N.H.W. Davis in the *Special Labour Force Studies* program.

TABLE 1. Weeks of Unemployment in 1968¹

Sex	Weeks of unemployment					Total
	5-8	9-13	14-26	27-39	40-52	
	'000					
Male	115	154	191	77	53	590
Female	47	55	58	28	21	209
Totals	162	208	249	105	74	799

¹ The following question was asked for each quarter of 1968:

- "In how many weeks did you
 (1) do some work?
 (2) look for work?
 (3) neither work nor look for work?"

These were asked so as to be mutually exclusive. The sum of the 3 responses would then add up to 13 weeks for each quarter.

The definition of unemployment implicit in the "look for work" question differs from the definition used in the *Labour Force Survey*, since the latter includes those on "temporary layoff up to 30 days" whether or not they were looking for work.

TABLE 2. Time Elapsed before Starting to Look for Work, by Sex and Age

Sex and age	Time elapsed			Total	
	Less than 2 days	2-14 days	2 weeks or more	'000	%
	per cent ¹			'000	%
Male:					
14-19 years	58.1	24.2	17.7	62	100.0
20-24 "	56.4	29.7	13.9	101	100.0
25-44 "	67.7	22.1	10.3	195	100.0
45-64 "	67.7	19.8	13.5	111	100.0
65 years and over	--	--	--	15	100.0
Female:					
14-19 years	50.0	--	--	30	100.0
20-24 "	38.5	25.6	35.9	39	100.0
25-44 "	41.7	22.9	35.4	48	100.0
45-64 "	63.0	--	--	27	100.0
65 years and over	--	--	--	--	100.0

¹ Percentages may not add to 100 due to rounding.

-- estimate less than 10,000.

TABLE 3. Time Elapsed before Looking for Work, by Marital Status and Age

Marital status and age	Time elapsed			Total	
	1-2 days	2-14 days	2 weeks or more		
	per cent ¹			'000	%
Single and other: ²					
14-24 years.....	55.0	27.8	17.2	180	100.0
25-44 ".....	58.3	22.9	--	48	100.0
45-64 ".....	57.7	--	--	26	100.0
65 years and over.....	--	--	--	--	--
Total.....	55.6	26.5	17.9	257	100.0
Married:					
14-24 years.....	47.1	25.5	27.5	51	100.0
25-44 ".....	63.9	21.6	14.4	194	100.0
45-64 ".....	67.3	19.5	13.3	113	100.0
65 years and over.....	--	--	--	13	100.0
Total.....	62.0	21.6	16.4	371	100.0
Totals.....	59.4	23.6	17.0	628	100.0

¹ Percentages may not add to 100 due to rounding.

² Includes widowed, divorced and separated.

-- estimate less than 10,000.

their former jobs, and over 80% postponed their search less than two weeks. In addition, more men started to look for work after only 2 to 14 days compared to those waiting two weeks or more. Women, on the other hand, seemed more inclined to let some time pass before beginning their search. This may be seen in the generally lower percentages of females, relative to males, starting immediately. Also, where comparisons can be made, the percentage of females waiting two weeks or more is approximately two and a half times as large as the corresponding male percentages.

On a *a priori* grounds one would expect that married persons would be less inclined to postpone their search than single persons. The data do support this expectation to some extent, particularly in the relative percentages of those starting their search immediately. However, a larger percentage of single people started their search in 2 to 14 days and fewer of them waited two weeks or more.

Methods of Search

In this survey, the respondents identified one or more of the ten methods of search listed in the questionnaire (see Table 4) as having been used by them in their longest (or only) period of unemployment. These results are tabulated against four levels of education (Table 4) and nine occupational groupings (Table 5).

The column totals at the bottom of the table indicate that the overall usage of the ten methods varied widely. By far the most popular method — named by 79% of all seekers — was contacting a Canada Manpower Centre. The second most widely used method was checking with local employers (69%), followed by checking with friends and relatives (59%). The utilization

rates of the other seven methods were all substantially below these three.

Perhaps the first observation to be drawn concerning the influence of education is that the number of methods increased on the average with increasing levels of education. Specifically, persons with "elementary or less" used an average of 2.9 methods of search; those with "some secondary" used 3.4 methods, and those with "secondary complete" and "university" used 3.9 and 4.2 methods respectively.³

It may also be inferred that certain methods are related to the level of education. The use of private employment agencies, for example, reported by only 17% of job seekers in the lowest education category, rose to 38% in the highest. Similar patterns are apparent in contacting employers in other communities, placing or answering newspaper advertisements, and writing letters of application. If the difference in the percentage between the lowest and highest education groups may be taken as measuring the strength of the relationship, then writing letters of application appears to be the method most strongly associated with education.

The reverse relationship — declining usage with increasing education — is not readily apparent in the table, although it might be found in the trade union category (small cell size prevented the use of the full data set).

By combining these observations on how education is related to the number of methods and to the

³ The average number of methods is calculated by dividing total methods by total seekers for each level of education. The overall average number of methods was 3.3.

TABLE 4. Methods of Search by Level of Education

Level of education	Methods										Total ¹ methods	Total ¹ seekers
	CMC	Private employment agencies	Local employers	Outside employers	Local papers	Outside papers	Letters of application	Friends and relatives	Trade union	Other action		
	per cent										'000	
Elementary or less	77.3	17.1	65.5	26.0	16.8	5.9	14.8	54.9	14.1	--	893	304
Some secondary	78.9	18.3	72.0	29.7	33.0	9.3	25.1	60.2	11.8	--	947	279
Secondary complete	82.4	25.0	69.9	32.4	45.6	13.2	45.6	61.8	11.0	--	527	136
University	74.5	38.2	74.5	38.2	52.7	--	58.2	61.8	--	--	229	55
Totals	78.5	20.4	69.2	29.3	30.2	8.9	27.0	58.5	12.1	--	2,596	775

¹ The methods of search as they appeared on the questionnaire:

Contact Canada Manpower Centre;
Contact private employment agencies;
Check with employers in your area;
Check with employers outside your area;
Place, or answer, advertisements in local papers;
Place, or answer, advertisements in papers outside your locality;
Write letters of application;
Check with friends or relatives;
Check with trade union;
Other action;
No action taken.

² Refers to the total number of methods used by all persons in each education category.

³ Refers to the number of persons in each education category **excluding** (1) those who did not specify a method of search, (2) those who explicitly stated that they took no action. Since each respondent could specify one or more methods of search the sum of the methods tried is greater than the population trying them. It follows that it applies to the percentage distribution as well.

-- estimate less than 10,000.

TABLE 5. Methods of Search by Occupation

Occupation	Methods										Total ¹ methods	Total ¹ seekers
	CMC	Private employment agencies	Local employers	Outside employers	Local papers	Outside papers	Letters of application	Friends and relatives	Trade union	Other action		
	per cent										'000	
Professional and managerial	65.7	40.0	68.6	42.9	51.4	--	57.1	57.1	--	--	142	35
Clerical	84.2	31.6	69.7	23.7	56.6	--	44.7	57.9	--	--	292	76
Sales	75.0	--	68.8	34.4	50.0	--	40.6	65.6	--	--	120	32
Service	78.3	20.5	63.9	22.9	33.7	--	27.7	57.8	--	--	267	83
Transportation and communications	84.4	--	73.3	40.0	28.9	--	28.9	57.8	--	--	161	45
Farming, fishing, logging, mining	78.2	--	69.1	25.5	--	--	--	--	--	--	148	55
Craftsmen, production process, and related workers	78.8	15.2	68.8	32.9	21.6	8.7	19.0	55.8	22.9	--	748	231
Labour	79.5	19.3	73.5	30.1	21.7	--	18.1	62.7	--	--	269	83
Never worked ²	76.5	21.3	68.4	23.5	33.1	7.4	30.1	62.5	--	--	450	136
Totals	78.6	20.4	69.2	29.4	30.2	8.9	27.0	58.4	12.1	--	2,596	775

¹ See footnotes 2 and 3, table 4.

² Many persons who have never worked have no identifiable occupations.

-- estimate less than 10,000.

usage of specific methods, one could infer something about how job search behaviour varies, on average, with the level of education of the seeker. Excluding the special circumstance of membership in a trade union, it would seem that the highly-educated tend to use much the same methods as other seekers, but they use more methods on average and the additional ones are concentrated on certain types.

If, for each occupation group, we rank the methods of search by the magnitude of their utilization rate, we find a surprising uniformity. For every group except "professional and managerial", contacting a Canada Manpower Centre was the most commonly

used method, and for the sole exception, the difference between its leading method and the CMC was only 3 percentage points.

Again with "professional and managerial" excepted, checking with local employers was the second most popular method throughout and, without exception, checking with friends and relatives ranked third. It is only in the fourth method that any real divergence appears: for occupations which could be loosely classified as "white-collar" (the first four groups in Table 5) it was placing or answering advertisements in local newspapers; for "blue-collar workers" (Groups 5 through 8) it was canvassing employers in other communities.

In spite of this uniformity in the ranking, certain methods are definitely favoured by some occupation groups compared to others. For example, 84% of "clerical" and "transportation and communications" workers contacted a Canada Manpower Centre but only 66% of "professionals and managers" did so. As one might expect, there was a relatively large spread in the use of private employment agencies: from 40% in "professional and managerial" to 15% for "craftsmen, production processing and related workers". Even greater variations, in the range of 35 to 40 percentage points, are apparent in the use of local newspapers and in the writing of letters of application.

The methods with the least spread were checking with local employers and with friends and relatives.

Successful Methods of Search

Respondents who were successful in finding a new job were asked to indicate which method was the one through which they found employment. Table 6 shows the percentage distribution of successful seekers by successful method of search.⁴ The occupation and

⁴ This table contains the data only for those methods where the estimates for successful seekers are not less than 10,000. Accordingly, any ranking of the data is somewhat biased since the excluded methods cannot be included in the hierarchy. However, the ranking procedure is still valid in the sense that it correctly ranks the most popular of the methods. A similar proviso also applies to Table 7.

education breakdowns have been dropped in the interest of maximizing the number of methods which can be included in the analysis or, in other words, minimizing the number of unusable small cells.

Checking with local employers was the successful method for the largest percentage of successful seekers and asking friends and relatives placed second. CMC, local papers, and trade unions respectively, accounted for the third, fourth and fifth ranking percentages.

Of course this kind of ranking conveys a very partial picture. If the use of a given method was very high it would account for a large percentage of successful seekers even if the success rates (i.e., successful seekers divided by total seekers) of all methods were equal. Accordingly, success rates have been calculated and, as given by the first row of Table 7, the most successful method was checking with local employers. More than one quarter of the persons who used this method found employment that way. The second most effective method seems to have been checking with friends and relatives (24%). Checking with a trade union (17%) and placing or answering ads in local newspapers (15%) ranked third and fourth respectively.

Contacting a Canada Manpower Centre was way down the list in terms of effectiveness (11%) although it was the leading method in terms of use.

TABLE 6. Successful Method of Search: Successful Seekers

	CMC	Private employment agencies	Local employers	Outside employers	Local papers	Outside papers	Letters of application	Friends and relatives	Trade union	Other action	Total successful seekers
	per cent										
Totals	15.8	2.7	34.4	4.5	8.7	--	3.2	25.7	4.0	--	404 '000

-- estimate less than 10,000.

TABLE 7. Success Rates by Method of Search

Class of seeker	CMC	Private employment agencies	Local employers	Outside employers	Local papers	Outside papers	Letters of application	Friends and relatives	Trade union	Other action
	per cent									
All seekers	10.7	7.4	26.5	8.1	15.1	--	6.3	23.6	17.1	--
Successful seekers	21.1	13.3	48.0	13.6	25.6	--	10.3	40.9	28.5	--

-- estimate less than 10,000.

The surveyed population contains persons with a wide variety of individual characteristics such as age, sex, level of education, employment experience and so forth. In other words, there is a wide range in the "employ-

ability" of the individuals and their job search success is likely to vary accordingly. However, there is no reason to believe that individuals with a given degree of "employability" are distributed among the job search

techniques in equal proportions. To allow for this, the second row of Table 7 shows the success rates of each method for successful seekers only. That is, for each method the success rate is the number of persons who found that method successful divided by the number of persons who tried that method but found some other method successful.

Although this results in some alteration in the relative size of the success rates, the changes are not sufficiently large to change the ranking from that obtained for the success rates of all seekers.

Intensity of Search

Another variable which describes job search behaviour is the total number of methods of search used by a given seeker. This is a rather unsatisfactory definition of intensity since a more complete measure would include the number of times each method was used, as well as the length of the search. Unfortunately, the latter data were not available for this study.

Insofar as the number of methods is a measure of intensity, one might expect that the intensity of the search would vary positively with the number of weeks of unemployment experienced — for obvious financial reasons.⁵

⁵ In addition, the design of the survey would contribute to this expectation. Specifically, the job search questions referred to the respondent's longest (or only) period of unemployment, and the longer this reference period, the more time the seeker would have to apply a wide variety of methods, especially in a sequential fashion. On an individual basis a long reference period is not necessarily associated with a large number of weeks of unemployment in the year (those unemployed for 52 weeks excepted) but in most cases this association is likely to hold true.

Such an association is not evident in Table 8. In fact, the opposite seems to hold true: 27% in the category with the least unemployment used five or more methods of search, while just 22% of those with 40 to 52 weeks of joblessness conducted a search with this intensity. This conflict can perhaps be reconciled by reference to the last three rows of Table 9.

It can be seen here that, overall, 29% of those using five or more methods found jobs while only 22% of those who did not find jobs used as intensive a search. It is possible that the amount of unemployment is inversely associated with intensity of search because the more intensive seekers tended to find new jobs more quickly.

Table 9 has been constructed so that the influence of the intensity on job search success can be distinguished from the influence of the level of education on success. It can be readily seen that for each level of education up to university the percentage of successful seekers using five or more methods exceeds the percentage of unsuccessful seekers employing as intensive a search. In other words, it can be inferred from this data that the more intensive the search, the greater the likelihood of finding employment.

An examination of the data in Table 10 reveals rather weak support for the hypothesis that married males would conduct a more intensive search (five or more methods) than single males. In the case of females however, 27% of single women used five or more methods as compared with only 18% of married women. Probably the husband's income reduced the need and desire for employment and modified the intensity of the search accordingly.

TABLE 8. Intensity of Search by Weeks Unemployed in 1968

Weeks of unemployment in year	Intensity		Total	
	1-4 methods	5 or more methods		
	per cent ¹		'000	%
5-8 weeks	72.8	27.2	158	100.0
9-13 "	73.6	26.4	201	100.0
14-26 "	75.4	24.6	240	100.0
27-39 "	73.8	26.2	103	100.0
40-52 "	77.8	22.2	71	100.0

¹ Percentages may not add to 100 due to rounding.

TABLE 9. Intensity of Search by Education and Result

Level of education and result (found job)	Intensity		Total	
	1-4 methods	5 or more methods		
	per cent ¹		'000	% ¹
Elementary or less:				
Yes	81.0	19.0	153	100.0
No	85.9	14.1	128	100.0
Other	87.0	--	23	100.0
Secondary complete:				
Yes	72.1	27.9	147	100.0
No	76.4	23.6	110	100.0
Other	81.0	--	21	100.0
University:				
Yes	53.8	46.2	39	100.0
No	--	--	11	100.0
Other	--	--	--	--
Totals:				
Yes	70.8	29.2	418	100.0
No	78.0	22.0	300	100.0
Other	80.7	19.3	57	100.0

¹ Percentages may not add to 100 due to rounding.

-- estimate less than 10,000.

TABLE 10. Intensity of Search by Marital Status and Sex

Sex and marital status	Intensity		Total	
	1-4 methods	5 or more methods		
	per cent ¹		'000	% ¹
Male:				
Single and other	72.3	26.7	258	100.0
Married	72.5	27.2	313	100.0
Female:				
Single and other	73.5	26.5	98	100.0
Married	81.9	18.1	105	100.0

¹ Percentages may not add to 100 due to rounding.

Notes on labour statistics

1972

Études des statistiques du travail

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PREFACE

Notes on Labour Statistics was designed to meet a need for the reporting of results of analytic studies and developmental projects undertaken by the Labour Division, Statistics Canada.

The main work of the Division is represented in its statistical publications, all well known to users in the labour field. Perhaps not generally recognized is that modern data production involves a substantial research activity — as adaptations are made to changing circumstances, as new technology is brought into play, and as new techniques of analysis give rise to demands for new data series. In our view, some of the research and development work would be of interest to a wider audience and it is the purpose of this publication to make it available.

Articles are published in the language in which they were written. Translation of single articles from French to English or English to French will be provided on request.

The editorial board consists of Helen Buckley, Co-ordinator, Manpower Research and Development (Chairman); D.J. Bailey, Director, Labour Division; and P. Hicks, Assistant Director.

Sylvia Ostry,
Chief Statistician of Canada.

PRÉFACE

Les Études des statistiques du travail ont été conçues pour transmettre les résultats des études analytiques et des travaux de mise au point entrepris par la Division du travail de Statistique Canada.

La Division s'occupe principalement de préparer des publications statistiques, toutes bien connues des utilisateurs dans le domaine du travail. Ce dont on ne se rend peut-être pas compte est que la production des données exige de nos jours beaucoup de recherches vu que des adaptations doivent être faites en fonction des circonstances changeantes, qu'il faut tenir compte de la nouvelle technologie et que les nouvelles techniques d'analyse donnent lieu à des demandes de nouvelles séries statistiques. À notre avis, une certaine partie de la recherche et du développement pourrait intéresser un plus vaste public, et c'est précisément le but de cette publication que de faire connaître les résultats des travaux.

Les articles sont publiés dans la langue dans laquelle ils ont été rédigés. On pourra obtenir sur demande la traduction d'articles, de l'anglais vers le français ou vice versa.

Le comité de rédaction est composé de Mme Helen Buckley, coordonnatrice à la Section de recherche et de développement en main-d'oeuvre (présidente), de M. D.J. Bailey, directeur de la Division du travail et de M. P. Hicks, directeur adjoint de la Division du travail.

Sylvia Ostry,
Le statisticien en chef du Canada.

INTERPRETING THE UNEMPLOYMENT STATISTICS

Helen Buckley*

High levels of unemployment over the past two years have been accompanied by a marked upsurge in interest in the official statistics which measure unemployment. These statistics have a long history (on a monthly basis, back to 1953) and their usefulness as a guide or indicator to the state of the economy is generally recognized. But criticisms have been voiced over the years and one in particular troubles a number of observers at the present time. This is the view that the statistics convey an exaggerated picture of unemployment because they include persons (notably youth and married women) for whom the hardship is minimal or non-existent and/or whose desire to work is not very strong.

What is at issue is not so much the accuracy of the statistics but the appropriateness of the concepts which have been chosen to define, and hence measure, unemployment. This paper examines the rationale behind the present definitions, the question of their continuing usefulness and, finally, the kinds of difficulties to be encountered in refining the statistics. Since the main focus is the treatment of secondary workers this paper should not be taken as a comprehensive critique of the labour force statistics.

The question "how to measure" cannot really be answered without first determining "why". Like most phenomena in the social sciences unemployment could be defined in various ways, so definition must be shaped by purpose. The primary purpose of the Labour Force Survey is to measure: (1) the number of persons with jobs (i.e., employment) which serves as an approximation of the demand for labour at a given point in time; and (2) any excess supply of labour seeking work (i.e., unemployment) which indicates the degree to which demand has fallen short of absorbing all job seekers.

The foregoing statement is to put it in the simplest possible terms. If analysis is to be pursued it is necessary to allow for vacant jobs which form a (small) part of demand and to relate the particular balance to labour's going rates of return at the time in question. But a short statement can capture the essential purpose of the unemployment statistics, namely, to measure the degree of fit between the number of people wanting employment and the ability of the

economy to provide employment. The overall unemployment rate provides a useful and reliable indicator as to the health, or otherwise, of the economy while a wealth of detailed statistics permit in depth examination of the labour market.

For purposes of evaluating the state of the labour market it is the number of seekers that matters, not the state of their finances nor the degree of hardship experienced. Unemployment, therefore, should be broadly defined. The definition which is used in the Canadian Labour Force Survey (as in most other countries which measure unemployment) takes in all persons who were without employment during the whole of a reference week and also seeking work.

This is not the broadest possible definition; for example, a person with four hours work Monday morning is classified to "employed" even if he spent the balance of the week seeking work. From this standpoint, one might argue that the statistics contain an element of understatement. On the other hand, working in the other direction is the problem that the survey has no way to ensure the exclusion of job seekers whose interest in finding work is questionable. The difficulty is: how to determine the strength or weakness of the desire to work? Where a respondent reports "seeking work" further questioning is not likely to yield the information that he (she) is not very serious. Even if it were, the probing of attitudes is considered undesirable because responses which refer to states of mind are subject to different interpretations. Thus, one interviewer might find the job interest weak where a second would not; in consequence, the determination of who is unemployed could vary from one place to another and from one month to the next.

The foregoing are some of the considerations which have gone into the production of "measured" unemployment. Appropriateness of the concepts cannot be judged by the definitions alone but must take account of the feasibility of implementing a given definition, the kind of data it will produce, etc. Given the overriding importance of consistency if the unemployment statistics are to serve as an economic indicator, the criteria for determining unemployment status should be as objective as possible. This requirement is met by the present criterion (without work and seeking) and for the advantages it confers we have accepted the disadvantage of including some weakly-motivated seekers.

* Manpower Research and Development Section, Labour Division.

The unemployment definition is not ideal for purposes of measuring "hardship" because the circumstances of unemployed persons may differ rather widely. Nevertheless, the unemployment statistics have often been used as a proxy for measuring hardship and, until recently, the complaint was seldom voiced that they were less than satisfactory for this purpose.

A main reason why the statistics are now being questioned lies in the changes occurring in the composition of the labour force. These include the growing number of married women who work full-time and also a growing number of students and housewives who work a limited number of hours per week (or weeks per year), the latter involving much more movement in and out of the labour market. Changing attitudes towards working for pay and changing family behaviour patterns are partly responsible, as are the altered age distribution of the population and many other factors.

Unemployment of primary workers has always been viewed as more serious than unemployment of such groups as married women and students, in part because they seem to have a greater need for jobs and also from the feeling that unemployment representing secondary workers is inflated by the not-so-anxious seekers. Thus, as the secondary worker share has increased over the years, the statistics of unemployment may seem to convey a somewhat different message than formerly. To interpret them we have more need than formerly to inquire into their composition.

To a certain extent, the statistics do have this capability already. They can be broken down into certain broad categories such as married males, single sons and daughters at home, etc., so that there is no necessity to look exclusively to the overall rate for the state of the economy message. As the overall rate moves from month to month supplementary statistics permit us to identify changing patterns for component sub-groups on the basis of sex, age and marital status. For example, statistics for August 1972 show the overall unemployment rate at 5.4 %, that of married men at 3.3 %, of single men 10.7 %, of married women 3.4 %, etc. (figures unadjusted for seasonality). Further detail providing family status of unemployed persons is published quarterly. Thus, in April 1972 40 % of the unemployed were heads of family units; in July only 29 % fell in this category and "single sons and daughters living at home" rose to 46 % of the total.

How much more detail is needed? The question is best tackled with reference to specific objectives and, since more statistics are always in some sense desirable, a regard for the cost and difficulty of collection.

For purposes of clarifying the state of the economy measure, the total unemployment rate should be studied along with data on prime-age males - not because this group is all important but because it is the least affected by changing work patterns. (Most part-time work and casual labour force attachments fall in the female or younger age groups.) But historical comparisons between the total rate and that of prime-age males show very little difference in the movement of the two series (see charts). While the latter showed a slightly smaller tendency to rise in 1971 and the seasonal pattern included a somewhat larger reduction in summer unemployment, it would seem that the existing data are still providing a good economic indicator. There are also the supplementary statistics for other age and sex groups to refine and supplement the message conveyed by the overall rate.

Chart-1

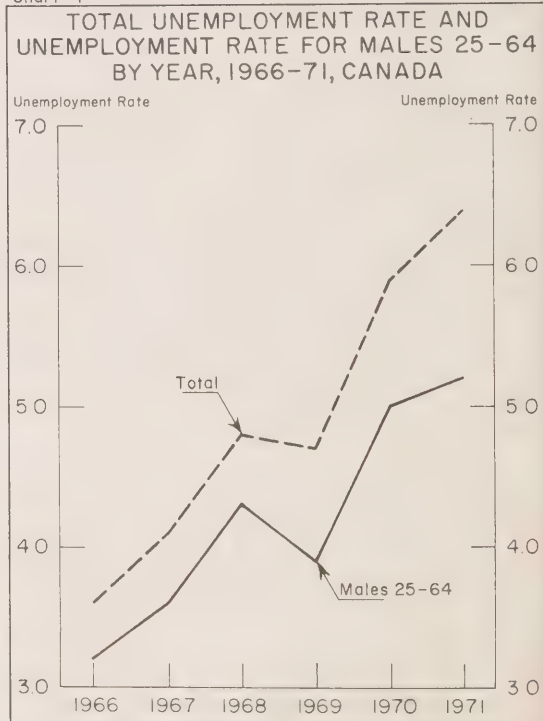
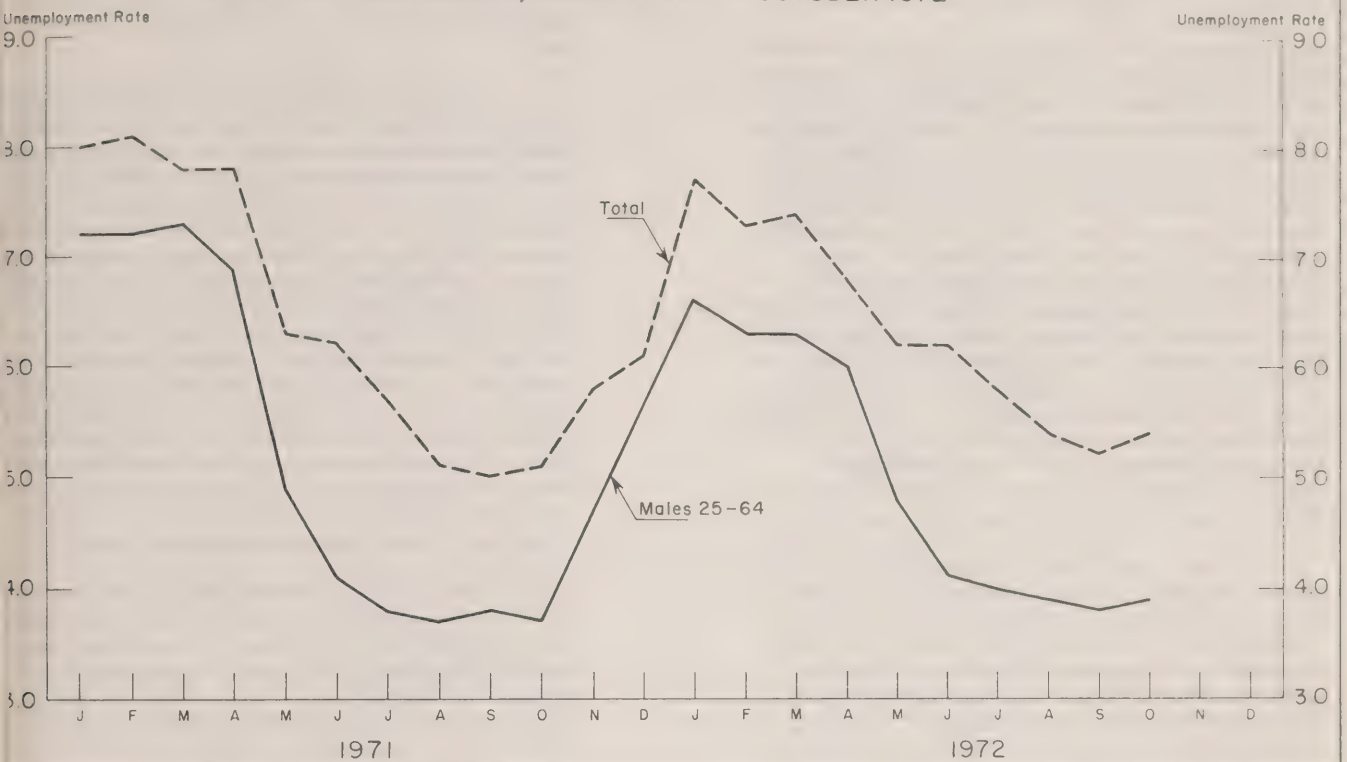


Chart-2

TOTAL UNEMPLOYMENT RATE AND UNEMPLOYMENT RATE FOR MALES 25-64
BY MONTH, JANUARY 1971 - OCTOBER 1972



More detailed information (and, as will be noted later, information of a different character, e.g. income data) would be needed if the unemployment statistics were to be categorized to measure hardship. A frequent suggestion has been the separate calculation of rates for primary and secondary workers, a task of greater difficulty than might appear on the face.

What, in fact, is a secondary worker? The usual definition is based on regularity of the attachment to the labour force, so that the secondary worker is typically a student or a housewife who normally or regularly switches back and forth between labour force and non-labour force activities. In popular usage, the reference to secondary workers often seems to have a broader connotation (possibly confused with secondary earner), taking in all married women who work and, sometimes, young persons who have left school but still live at home. If we take the broad definition as the basis for identifying "non-hardship" unemployment we confront the fact that there are working wives whose husbands cannot support the family unassisted. The usual definition (regularity of attachment) is equally unsatisfactory for if secondary workers are to be excluded on this basis we inevitably

exclude a large number of wives in low-income families who are forced by circumstances - in industry, or in the home - to work sporadically.

The fact is, for purposes of determining hardship, the distinction between primary and secondary worker is a very uncertain guideline. The unemployed male head is an obvious case of hardship but his claim is no more compelling than some of the secondary workers'. Thus, a hardship category based on marital status and stability of attachment would include the unemployed executive but not the fisherman's wife seeking part-time work to supplement his earnings of \$2,500 a year.

Problems of this kind could be resolved by collecting detailed income data. "Poverty lines" would be drawn and those segments of the unemployed which reported less than a specified minimum could be designated as the hardship category. (Asset and debt information would also have to be gathered since loss of current income might be offset by substantial assets.) But these are not simple measures. To collect detailed income and asset information each month (the present basis for collecting these is once a year)

would greatly increase the cost of the monthly survey as well as the inconvenience to respondents, which suggests that the case for doing so should be examined with some care.

One of the difficulties is that poverty lines are necessarily arbitrary. A line drawn at \$3,000 a year (for given family size) means that unemployed persons with annual income of \$3,200 (same family size) are excluded from the hardship category; a more generous definition of poverty will still exclude persons or families who are but little better off. Thus, the hardship category would tend to understate. A second and closely related concern is that unemployment frequently involves very large reductions in income without reaching the poverty line. This will often be the case in the two-earner household. A great many Canadian families want the larger income which two earners can provide and the loss experienced through the wife's unemployment would be viewed as financial hardship by most of the families concerned.(1)

While it is clearly impossible to devise a hardship measure which takes account of different income aspirations, a measure which merely segregates the unemployed who meet some definition of poverty appears to have a rather limited range of application. Given the cost and inconvenience of producing such a measure, its relevancy to a range of questions surrounding unemployment should be more thoroughly explored. School-leavers living at home — a large segment of the unemployed — are a case in point. In this case, the amount of financial hardship depends primarily on the income of the parents which could be measured. But, having done so, these data would shed no light on the qualifications and employability of this particular group of unemployed, the problems they

(1) We refer to the situation where the loss of job is followed by job seeking activities. If the wife has voluntarily withdrawn from the labour market she does not appear in the unemployment statistics.

encounter in the job market or the degree of effort expended in job search. All of these are likely to contribute more to an understanding of youth unemployment than is a measure of the financial situation of the moment.

Another area deserving attention is the possibility for identifying the wives (and other workers) whose attachment to the labour force is truly marginal. The hardship category affords little help since many secondary workers are strongly motivated despite absence of poverty. Neither could much reliance be placed on intermittency of attachment per se. The total of unemployed married women with short or broken attachment may include, at one extreme, those with no serious intention of working and, at the other, regular earners from families whose economic strategy is based on part-year work by the wife. For purposes of interpreting the unemployment statistics, to attempt some measures of degrees of attachment may be more important than measuring financial need.

Finally, the concern that is so frequently expressed for determining hardship in the unemployment statistics might be set against the fact that their opposite — the employment statistics — can hardly be said to denote absence of hardship. Unemployment, usually, is a temporary state whereas the incomes of the working poor may be inadequate over a lifetime.

Weighing benefits against the cost, we think there might be some difficulty in justifying the monthly collection of data to denote poverty or hardship. At the same time, the gaps in knowledge concerning the unemployed are real and recognized by Statistics Canada. The problem is to improve and extend the existing statistics in directions that are both feasible from the standpoint of measurement and analytically useful. To this end a broad program of research specifically directed to increasing the amount and quality of the data from the Labour Force Survey has recently been instituted.

RECENT ECONOMIC RECOVERY AND UNEMPLOYMENT

Nand Tandan*

It has been generally agreed that, following a period of sluggish growth, the Canadian economy entered a phase of expansion in the fall of 1970. In the 12 months following the third quarter (i.e., the third quarter of 1970 to the third quarter of 1971) several economic indicators revealed a strong growth pattern: final domestic demand increased by 11 1/2 % in money terms and 7 1/2 % in real terms; output grew at a slightly slower rate - 10 1/2 % in money terms and 6 1/2 % in real terms. However, a widely noted characteristic of the apparent recovery was that it made no significant reduction in the level of unemployment. On a seasonally adjusted basis the unemployment rate remained at or above 6 % throughout the 12-month period.

Continuing high unemployment has led to a series of questions regarding the meaning and measurement of the labour force, employment and unemployment, some of which have been dealt with elsewhere in this issue. The object of this paper is to compare the record of employment and unemployment during the first 12 months of the recent recovery with the same initial period of three earlier

recoveries in the post-war era. In particular, we wish to find out whether unemployment has been similarly slow to decline in previous recoveries and, if not, to examine the behaviour of other factors in the labour market which may help to explain the present stickiness.

In selecting the study periods we have relied on the dates established by the Bank of Canada to mark the beginning of all four recovery phases. These are: 1954, second quarter; 1958, first quarter; 1961, first quarter; and 1970, third quarter.

Table 1 shows the unemployment rate at the beginning and end of the first 12 months in each recovery period. It will be noted that in each of the first three recoveries the unemployment rate declined. The reduction was rather small (0.3 percentage points) in the 1954 recovery but since the initial unemployment rate was relatively low this reduction might be considered significant. In the 1958 and 1961 recoveries the unemployment rate declined by 0.5 and 1.5 percentage points respectively, whereas in the recent recovery it failed to decline at all. Nor is there any great improvement in the two quarters which followed the initial 12 months.

TABLE 1. Unemployment Rates at the Beginning and End of the First Year of Post-war Economic Recoveries by Sex, Canada

(seasonally adjusted)

Period	Both sexes	Males 25-54 years	Other males	Females
End quarter 1954	4.7	4.6	6.9	2.6
End " 1955	4.4	4.2	6.4	2.6
1st " 1958	6.7	6.5	9.8	3.5
1st " 1959	6.2	6.1	9.5	3.0
1st " 1961	7.6	7.5	11.6	4.0
1st " 1962	6.1	5.8	9.4	3.3
3rd " 1970	6.5	5.5	10.2	4.9
3rd " 1971	6.5	5.3	10.4	5.0

Source: Seasonally Adjusted Labour Force Statistics, Statistics Canada (Catalogue 71-201 Annual) (Ottawa: Information Canada, 1971).

Labour Force Composition

The stickiness in the unemployment rate in the face of other evidence of growth in the economy has frequently been attributed to changes occurring in the composition of the labour force. The growing proportion of young persons and women (hence, a declining proportion of prime-age males) is assumed to have some bearing on the unemployment rate, particularly as youth is exposed to higher rates of unemployment. The latter is clearly the reason for the widening disparity between the overall rate and that of prime-age males which may be seen in Table 1. However, this widening disparity does not prove that the overall rate has been raised. What the overall rate would have been in the absence of any change in labour force composition since 1961 may be seen in Table 2. Column 1 shows the actual rates (seasonally adjusted) in 1970 and 1971; column 2 shows the rates calculated by using the labour force shares of broad age and sex groups which obtained in 1961.(1)

TABLE 2. "Actual" and Standardized Unemployment Rates in the Third Quarter, 1970 and 1971, Canada

(seasonally adjusted)

Period	Actual rate	Standardized rate
1970 - July	6.5	6.5
August	6.4	6.4
September ..	6.6	6.5
3rd quarter	6.5	6.5
1971 - July	6.2	6.2
August	6.3	6.1
September ..	6.9	6.8
3rd quarter	6.4	6.4

Source: Seasonally Adjusted Labour Force Statistics, Statistics Canada (Catalogue 71-201 Annual) (Ottawa: Information Canada, 1971).

- (1) The standardized unemployment rate was calculated by weighting age-sex specific unemployment rates in the respective months by their share of the labour force in 1961. The age-sex groups used were men 14-19, 20-24, 25-54 and 55 and over, and women 14-19, 20-24, 25-44 and 45 and over. The choice of age groupings was dictated by the availability of data.

The negligible change in the unemployment rate due to standardization is the result of the opposing influences exerted by the growing numbers of young workers on the one hand and of female workers on the other. The fact that women have a lower-than-average unemployment rate has largely offset the high rates experienced by youth. To the issue at hand, this means that the behaviour of the overall rate in 1970-71 is not simply explained by changes in labour force composition.

A similar conclusion is reached if we single out the prime-age males and compare the behaviour of their unemployment rate in the four recovery periods. As may be seen in Table 1, the decline in 1970-71 is appreciably smaller than that of previous recoveries.

The experience of both other groups (younger and older males, all females) has also been atypical. In both groups the unemployment rate increased in 1970-71 and, although the increase might be within the range of sampling variability (particularly in the case of females), the pattern in earlier recoveries was one of a clear-cut decline. The absence of a decline in the unemployment rates of these groups, together with their greater importance in the labour force, has been partly responsible for preventing the overall unemployment rate from declining.

Employment

In Table 3 we turn to consider the increase in employment in 1970-71 as compared with earlier recoveries. For paid workers the Labour Force Survey showed a 12-month increase of just over 3 % in 1970-71, which is the lowest of all four recovery periods and well below the increases registered in 1954-55 and 1961-62. The increase in employment in 1970-71 is marginally raised if agricultural workers are excluded but the comparative picture remains unchanged.

Paid workers in the Labour Force Survey include both full-time and part-time workers. In the last column we find that the 1970-71 increases for full-time workers (employed 35 hours or more) was only 1.8 % as compared to a growth rate of 3 to 4 % in the previous recoveries. This suggests that a larger-than-usual share of employment growth was accounted for by part-time workers so that the total increase in 1970-71 would overstate the amount of employment generated.

TABLE 3. Changes in Employment During the First Year of Upturn in the Four Post-war Economic Recoveries, Canada

Period	Paid workers					
	Including agriculture		Excluding agriculture			
	Total(1)		Total(1)		Employed 35+ hours(2)	
	Number	Percentage changes	Number	Percentage changes	Number	Percentage changes
	'000		'000		'000	
2nd quarter 1954	3,945		3,827		3,528(3)	
2nd " 1955	4,098	3.9	3,979	4.0	3,633(3)	3.0
1st " 1958	4,514		4,416		3,743	
1st " 1959	4,669	3.4	4,569	3.5	3,868	3.3
1st " 1961	4,835		4,729		3,932	
1st " 1962	5,013	3.7	4,905	3.7	4,090	4.0
3rd " 1970	6,849		6,745		5,145	
3rd " 1971	7,064	3.1	6,961	3.2	5,237	1.8

(1) Figures used are seasonally adjusted.

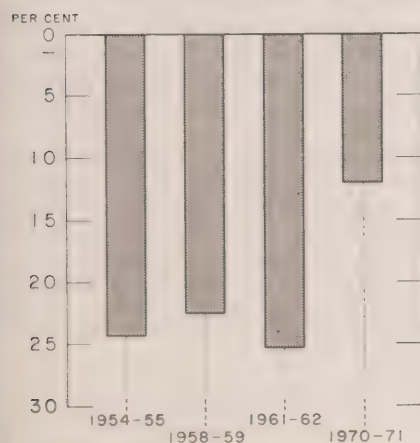
(2) Figures used are not adjusted for seasonality.

(3) These figures represent the average of May and June since Good Friday occurred during the reference week of April of 1954 and greatly affected the increase from one year to the next.

Source: Non-agricultural paid workers working more than 35 hours per week taken from Special Table 3b published by the Labour Force Survey. Other estimates of paid workers from Seasonally Adjusted Labour Force Statistics, Statistics Canada (Catalogue 71-201 Annual) (Ottawa: Information Canada, 1971).

CHART-1

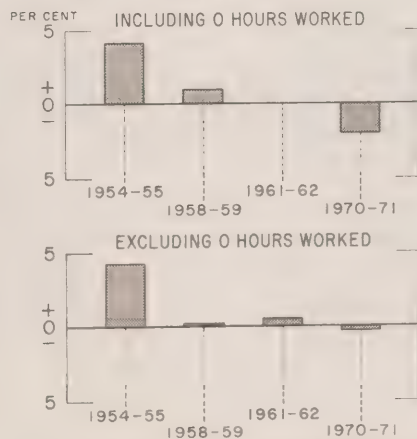
PERCENTAGE CHANGE IN SHORT-TIME AND TURNOVER AT THE BEGINNING AND END OF THE FIRST YEAR OF POST-WAR ECONOMIC RECOVERIES, CANADA



SOURCE: MONTHLY LABOUR FORCE SURVEY, SPECIAL TABLE 3A

CHART-2

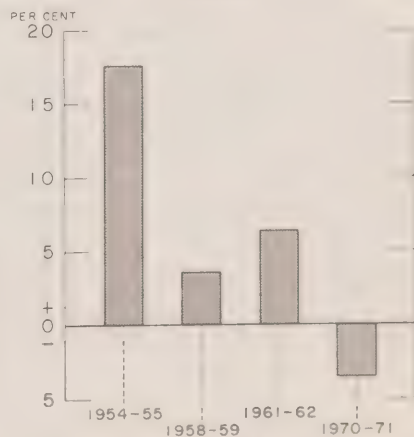
PERCENTAGE CHANGE IN AVERAGE WEEKLY HOURS AT THE BEGINNING AND END OF THE FIRST YEAR OF POST-WAR ECONOMIC RECOVERIES, CANADA



SOURCE: FIGURES FOR 1954, 1955 AND 1958 WERE TAKEN FROM CATALOGUE NO. 71-502 (REFERENCE PAPER NO. 58); 1959 FIGURES WERE PREPARED BY LFS; REST OF FIGURES TAKEN FROM SPECIAL TABLE 3B.

CHART-3

PERCENTAGE CHANGE IN EMPLOYED 45 HOURS AND OVER AT THE BEGINNING AND END OF THE FIRST YEAR OF POST-WAR ECONOMIC RECOVERIES, CANADA



SOURCE: MONTHLY LABOUR FORCE SURVEY, SPECIAL TABLE 3B — NON-AGRICULTURAL PAID WORKERS

Employment data from the establishment surveys (based on payroll records) show a similar disparity between 1970-71 and the recovery in the early sixties. (This series lacks full coverage prior to 1961 which prevents comparisons with the other recoveries.)

Short-time and Turnover

There is frequently a considerable time lag between the start of an expansionary cycle and its full impact on the creation of jobs, the initial reaction being a reduction in lay offs and dismissals. Comprehensive data on this aspect of the labour force are not available but Statistics Canada does collect and publish certain data for persons working less than a full week. Specifically, these are persons who usually work 35 hours or more but worked less in the survey week due to short-time, lay off or change of job; the latter includes finding, as well as losing, employment. This information has been charted for the four recoveries under review (Chart 1).

It will be seen that a reduction occurred in the number of people on short-time and turnover during the 1970-71 recovery, but the reduction was of the order of 12 % which is less than half that in the previous recoveries.

Hours of Work

The full effect of cyclical economic expansion is also likely to be delayed because business firms tend to use their existing work force more intensively before hiring new workers. In other words, the increased demand for labour is met with more man-hours instead of more men. This phenomenon is readily confirmed, in the case of the earlier recoveries, by the data presented in Chart 2. These depict percentage changes in average weekly hours of non-agricultural paid workers; the first series charted includes persons with jobs but not at work during the week (i.e., the zero hours category) while

the second series excludes them. Whichever series is used, the latest recovery is unique. Whereas all previous recoveries show the expected increase in average hours worked — with the single exception of 1961-62 in the first series in Chart 2 which showed no change — the recent recovery shows a decline in average hours.

One possible explanation is that the reduction in average weekly hours has been caused by an influx of part-time workers. In this context it is instructive to look at persons working "long" hours, thus excluding part-time workers while incorporating the impact of overtime workers (Chart 3). The strange behaviour of the weekly hours series now appears even stranger. The number of employees who worked 45 hours or more dropped by 1 1/2 % in the 12 months following the third quarter of 1970, which compares with a rise of 3 1/2 to 17 1/2 % in the earlier recoveries.

Conclusion

A puzzling feature of the recent recovery, tentatively defined as beginning in the third quarter of 1970, has been the stickiness in the unemployment rate in the face of an impressive growth in output. Drawing on comparative data series from earlier periods defined as upward turning points, this analysis concludes first that changes in labour force composition are not a major reason why unemployment is declining more slowly. Further examination reveals that employment growth has been somewhat slower than in the earlier recoveries, that employed workers have been used less intensively (rather than more), and that the amount of short-time and turnover has decreased much less than formerly.

These factors seem to suggest changes occurring in the utilization of labour which make demand less sensitive to a rise in output. The frequently encountered reports of companies which are meeting demands for increased production by reorganizing existing manpower, though only an impression, are perhaps worth citing.

APPENDIX

TABLE A1. Short-time and Turnover at the Beginning and End of the First Year of Post-war Economic Recoveries, Canada

Period		Number (1)	Percentage changes
		'000	
2nd quarter	1954	210	
2nd "	1955	159	- 24.3
1st "	1958	284	
1st "	1959	220	- 22.5
1st "	1961	308	
1st "	1962	230	- 25.3
3rd "	1970	233	
3rd "	1971	205	- 12.0

(1) Persons who usually work 35 hours or more but in the survey week worked less due to short-time, lay off or change of job.

Source: Monthly Labour Force Survey, Special Table 3a.

TABLE A2. Average Weekly Hours at the Beginning and End of the First Year of Post-war Economic Recoveries, Canada

Period	Including 0 hours		Excluding 0 hours	
	Actual	Percentage changes	Actual	Percentage changes
2nd quarter 1954	38.5		39.4	
2nd " 1955	40.1	4.2	41.1	4.3
1st " 1958	39.1		40.4	
1st " 1959	39.5	1.0	40.5	0.2
1st " 1961	38.9		39.8	
1st " 1962	38.9	0.0	40.0	0.5
3rd " 1970	34.4		39.2	
3rd " 1971	33.7	- 2.0	39.1	- 0.3

Source: Figures used in the calculations to derive average weekly hours were obtained from the following sources: 1954, 1955 and 1958 from The Labour Force November 1945 - July 1958, Statistics Canada (Catalogue 71-502) (Ottawa: Information Canada); rest of figures from Special Table 3b, monthly Labour Force Survey.

TABLE A3. Employed 45 Hours and Over at the Beginning and End of the First Year of Post-war Economic Recoveries, Canada

Period		Number	Percentage changes
		'000	
2nd quarter	1954	2,478	
2nd "	1955	2,914	17.6
1st "	1958	2,777	
1st "	1959	2,875	3.6
1st "	1961	2,779	
1st "	1962	2,956	6.4
3rd "	1970	3,617	
3rd "	1971	3,492	- 3.5

Source: Monthly Labour Force Survey, Special Table 3b, non-agricultural paid workers.

CURRENT PATTERNS IN THE FEMALE LABOUR FORCE

Canada 1972

May Nickson*

The fact that the female labour force continues to grow has been a subject of intermittent concern through the last several years of high unemployment - a concern heightened considerably in the wake of changes in the Unemployment Insurance Act which went into effect in mid-summer 1971. The present study is a response to questions which have arisen regarding new and more generous eligibility requirements. The latter, clearly, have raised the number of women claiming benefits; have they also changed working patterns? Possible effects include more short-term working, more unemployment, and more women drawn into the labour force who formerly would have stayed at home. This examination will be mainly limited to the period immediately before and after the new Act came into effect (mid-summer 1971), though drawing on time series as needed for the delineation of trends.

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Background

The most important trend to be noted is, of course, the long-term upward movement in the number of women working and in the female participation rate. The growth in numbers is attributable partly to demographic factors (the post-war baby boom arriving at labour force age) and partly to changing attitudes to work. Both are reflected in the participation rate which, overall, rose from 28.7 % in 1961 to 36.5 % in 1971. Little, if any, increase occurred in the participation rate of the unmarried women (single, separated, widowed, divorced) but the rate for married women rose from 21.0 % to 33.0 %.

It is perhaps not generally recognized that, although the increases were large, the female participation rate in Canada was much lower than that of other industrial countries at the beginning of the decade and remains lower today (see Table 1). Latest available figures show the Canadian rate for married women a full 10 points below the U.S. and the U.K. and almost 20 points below Sweden.

TABLE 1. Participation Rates for Selected Countries, 1961 and 1969

Country	Total females		Married females	
	1961	1969	1961	1969
Canada	28.7	35.2	21.0	31.2
U.S.A.	36.9	41.1	32.7	39.6
U.K.	40.4	41.8	34.4	39.0
Sweden	43.9	47.4	39.4	48.2
Germany	41.5	38.4	32.9	34.4
Japan	54.3	50.1	50.1	48.8

Source: Figures for Canada from The Labour Force, Statistics Canada (Catalogue 71-001 Annual) (Ottawa: Information Canada); figures for other countries from Labour Force Statistics 1958-1969, Organisation for Economic Co-operation and Development (Paris, 1971).

Nevertheless, the addition of approximately one million women to the labour force during the sixties put continuous pressure on the Canadian labour market which also had to absorb large increases in the number of younger males. So long as employment was also

growing strongly this pressure was not much in evidence; but by the late sixties the demand for labour had begun to fall behind. In 1970 the unemployment rates for both men and women moved sharply upward.

The New Unemployment Insurance Act

Major revisions in the legislation became effective June 27, 1971 with the stated purpose of making the thirty year old system of unemployment insurance more responsive to the needs of the present day labour force.(1) Among these, the new Act was intended to alleviate some of the disabilities confronting women in the labour force. Thus, maternity benefits were introduced, aimed at assisting women to return to work if it was their wish to do so. The expressed concern for persons with a short work history appears to cover not only new entrants but also older women who, on rejoining the labour force after long absence, are unable to secure more than short spells of employment and hence fail to qualify for the assistance which would encourage them to keep looking.(2)

From the standpoint of this study the most important changes were those affecting eligibility; these may be briefly summarized as follows:

- (1) Coverage was extended to virtually all employees, thus adding salaried personnel earning over \$7,800 per year and previously exempted occupations such as teachers, nurses and government employees (effective January 2, 1972);
- (2) Requisite work experience before benefit entitlement was reduced to eight weeks in the preceding year from 30 weeks in the preceding two years;
- (3) Benefits were given to major attachment claimants(3) temporarily unable to work because of illness;
- (4) Benefits were given to major attachment claimants for maternity absences covering periods before and after confinement;
- (5) Claimants were given extended benefit periods when unemployment rates were high, providing they were willing and able to work.

- 1) Unemployment Insurance in the 70's (Ottawa: Information Canada, 1970), p. 4.
- 2) "Persons with a short work history may have even greater problems than those who have a long-term labour force attachment. Allowing workers to take early advantage of an unemployment insurance program prevents them from falling into unstable work patterns. Instead, they are effectively integrated into the productive mainstream." op. cit., page 5.
- 3) Major attachment claimants must have worked 20 weeks out of the preceding 52 weeks.

The Labour Market After the New Act

U.I.C. claimant data. - It is clear that the new Act has increased the number of UIC claimants(4) for the simple reason that it extended coverage. However, the amount of the increase is difficult to assess because the effects of rising unemployment are also present.

Categories of claimants who would not have been entitled to benefits under the old Act would be chiefly the following:

- (1) persons in salary ranges or occupations previously excluded;
- (2) persons on maternity or illness benefits;
- (3) persons with previous job of limited duration (i.e., employed 2-4 months);
- (4) summer students with summer employment the previous year.

The effect of item (1) is probably not very great since the previous exclusions tended to be in industries and occupations with a low incidence of unemployment. Items (2) and (3) would tend to have a greater application to women than to men and item (4) would also have some effects for women. Not surprisingly, therefore, the increase in the level of female claimants over the past twelve months (Chart 1) is markedly greater than the increase for males (Chart 2). In the male case we cannot even be sure that the Act has had an effect because claimant levels did not begin to rise until May 1972 when unemployment also rose over the preceding year. However, from May onwards the male levels are substantially higher and it seems likely that item (4) bears some of the responsibility.

There are several reasons why the number of UIC claimants will differ from the official estimates of unemployed persons provided by the Labour Force Survey. To be "unemployed" the person must be without a job and seeking work; however, he (she) may not be entitled to UIC benefits, particularly under the old Act. On the other hand, claimants may be either partially employed or not actively seeking work, in which cases they would not be counted in the unemployment statistics.

Under the old Act, the number of unemployed males always exceeded the number of male claimants during the summer months because the ranks of the unemployed were swollen by students and new entrants not entitled to benefits. On the other hand, female

- (4) Data on UIC beneficiaries are not presently available.

CHART-1

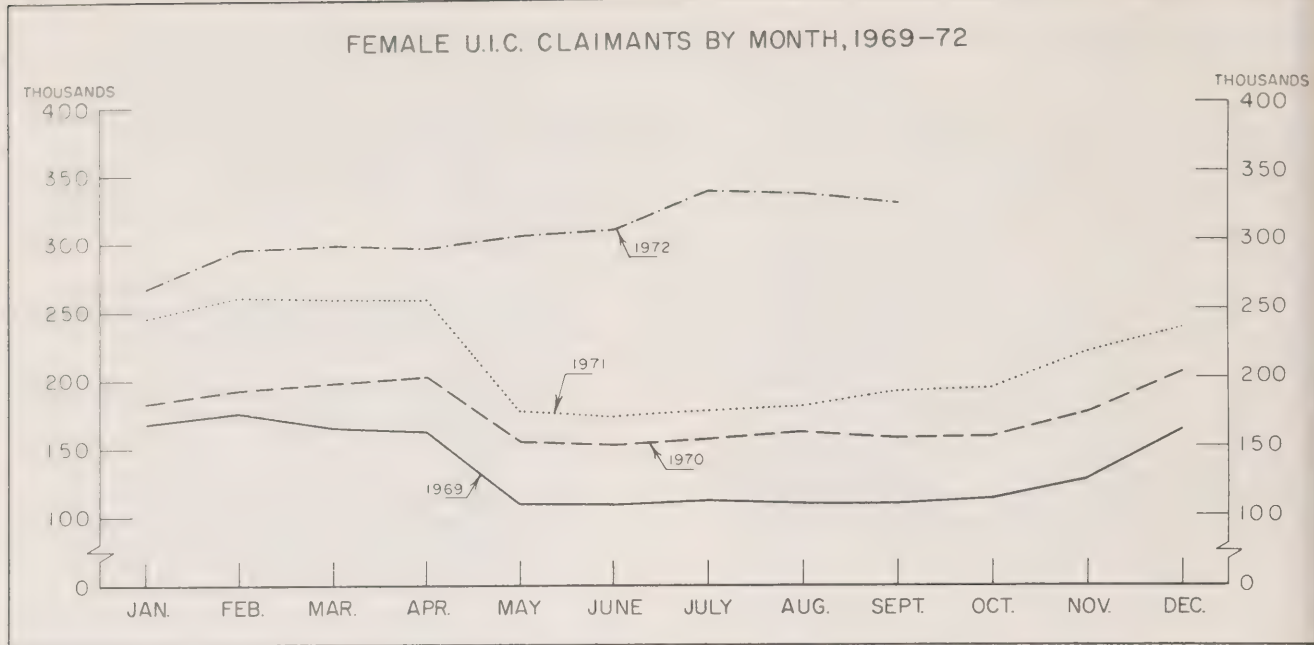


CHART-2

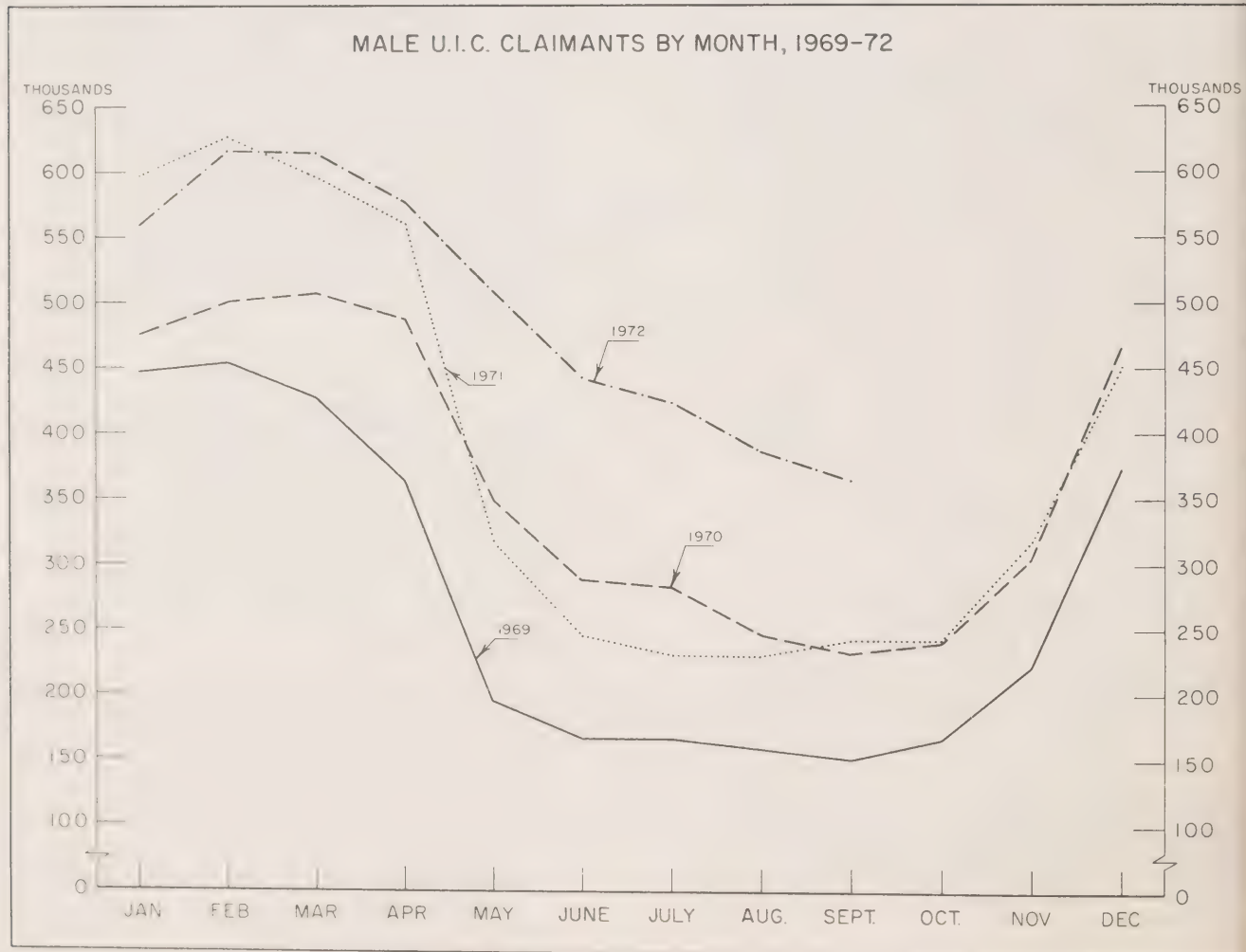


CHART-3

RATIO OF FEMALE U.I.C. CLAIMANTS TO L.F.S. UNEMPLOYED BY MONTH, 1969-72

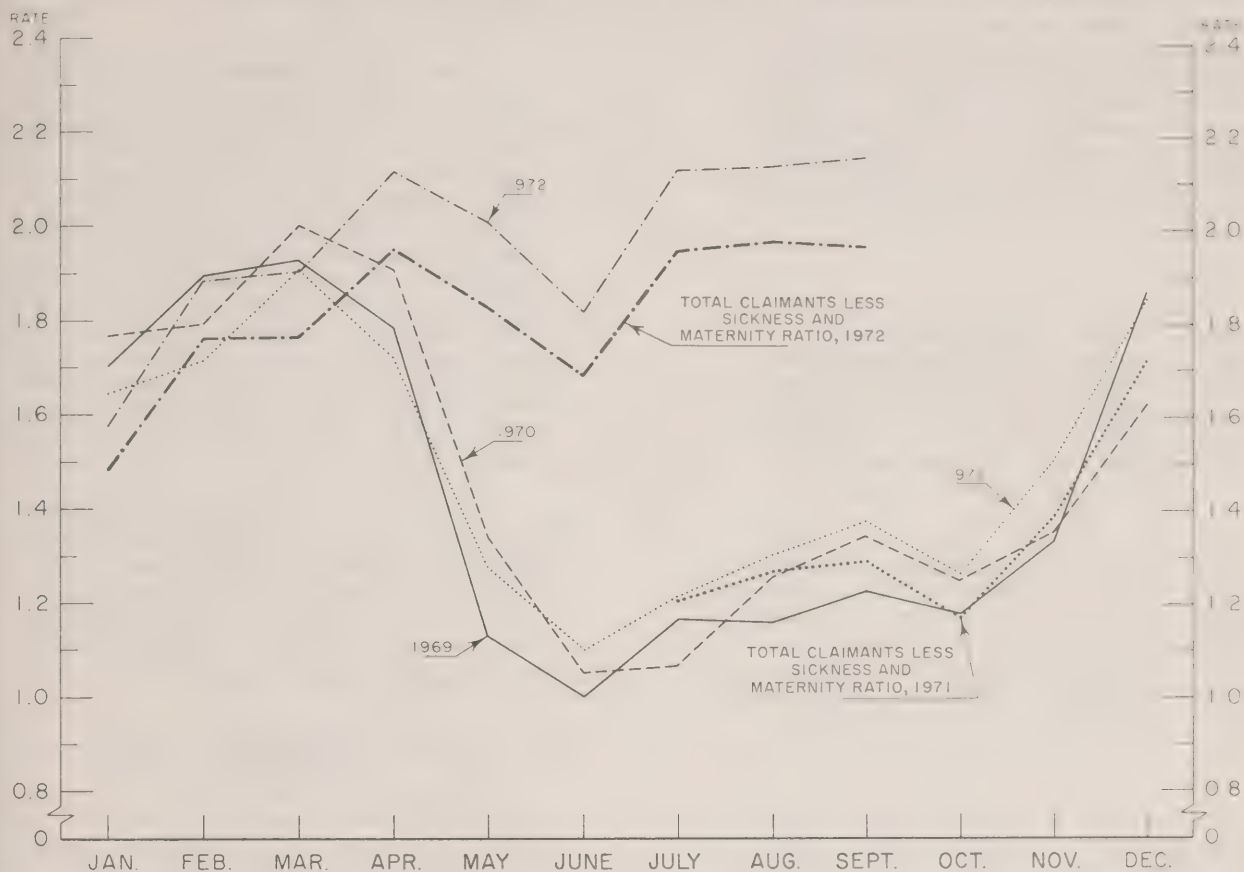
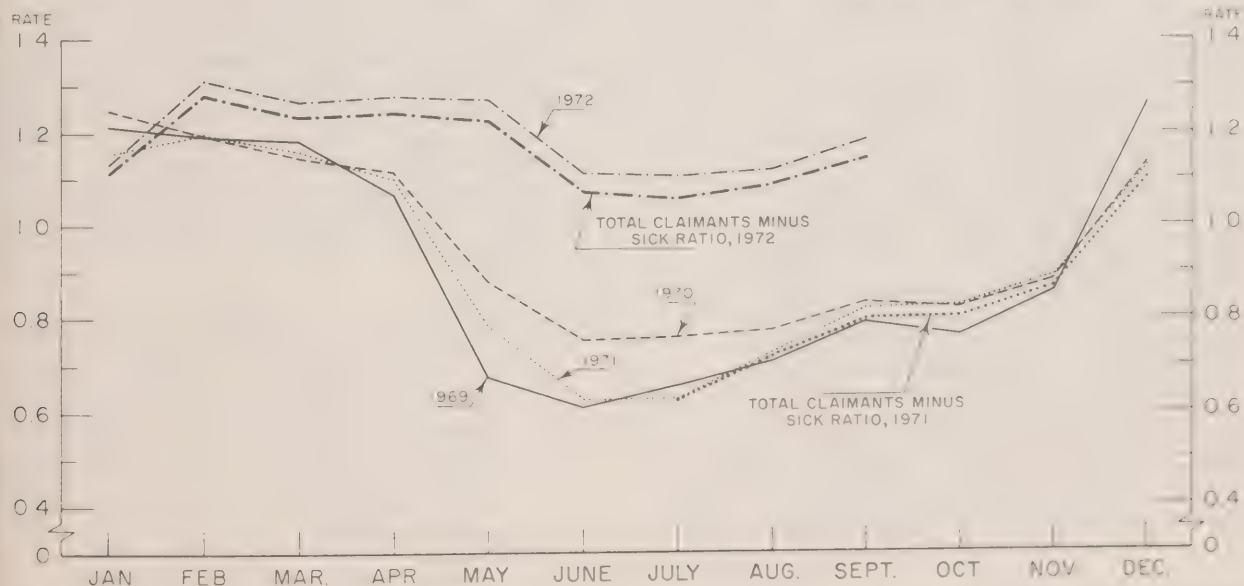


CHART-4

RATIO OF MALE U.I.C. CLAIMANTS TO L.F.S. UNEMPLOYED BY MONTH, 1969-72



claimants remained higher even in the summer. It is not known why the female pattern differed; one theory is that enough women claimed benefits without actually seeking work to offset the students and other unemployed women not entitled to benefits. The theory cannot be proved but certainly there have always been segments of the population who felt entitled to draw unemployment insurance on the grounds that they had no option about paying for it.

Charts 3 and 4 show the ratio of UIC claimants to the official unemployment statistics for males and females respectively. Again the 1972 pattern is quite different. The usual summer drop in the male ratio has been much reduced; the female pattern includes a brief decline but it is very small compared to earlier years and not sustained.

This shows that the higher claimant levels in 1972 are not attributable to radical changes occurring in the amount and seasonal patterns of unemployment. The traditional relationships with the unemployment series have been altered by changes in the claimant pattern, presumably related to the new Act.

Since the new Act substantially affected the ratio of female claimants to unemployed - from 1971 to 1972 it went from 1.1 to 1.8 for June and from 1.3 to 2.1 for August - a large number of women must have begun to claim benefit after limited employment periods (item 3 above). Some of this group would always have looked for work on completion of short-term jobs and, hence, would be officially classified as unemployed. However, since the ratio of claimants to unemployed was always greater than unity some additional groups must be claiming benefit in 1972. It is possible that more women than formerly have been "cashing in". But the question of legitimacy is a complex one. As noted, the new Act was intended to assist persons (including women) whose lack of training or experience makes it difficult both to keep and find employment. Some claimants of this kind may have picked up a few hours of work, e.g. baby-sitting; they would not then be classified to "unemployed" by the Labour Force Survey. Or perhaps the job search was weak. The marginally employable tend to lack skills in the job search and, frequently, self-confidence so that the search activities are weak and sporadic. A claimant of this kind - with no search activity in the reference week - could not be classified to "unemployed" in the Labour

Force Survey because the definition requires active seeking; they appear as "not in the labour force". (5)

Maternity claimants are a relatively small group - in the early months running around 11,000 and with further increases in 1972 to a peak of 17,000 (see Chart 5). Illness benefits grew rapidly for both males and females to a peak of about 27,000 (Chart 6). This was similar to the illness level estimated by the Labour Force Survey for 1970. If the winter months are excluded (when the number of male claimants is very high) the female component of illness claimants is similar to that of regular claimants. If the new Act is adding illness claimants whose labour force attachment is marginal, the number is not large enough to be reflected in the data.

To see the effect of maternity and illness claims on the level of female claimants, Chart 3 contains a separate line to show the total after these special claimants have been excluded. This reduced the difference between claimants and the unemployed but not greatly and the new seasonal pattern was unaltered.

Labour force effects. - Since the new Act makes it possible to claim benefits after a short period of employment, it is sometimes argued that more women will enter the labour force to work a short stretch and then collect unemployment insurance. (Of course, such a practice was also possible under the old Act with the difference that the qualifying period was longer.) An effect of this kind, if it is more than minimal, should be discernible in Labour Force Survey data in the form of a higher female participation rate.

Turning to Chart 7 we find that although the number of women in the labour force continued to increase through 1971 and 1972 the increase in the participation rate was very much as it had been for the ten preceding years. The latest figures - third quarter 1972 - show an increase of 0.9 percentage points since the third quarter 1971 which is precisely the average annual increase in female participation between 1961 and 1971.

(5) UIC benefits are based on a very similar concept of employment; in most cases it is required that the recipient is seeking work. But the status of UIC claimants is not determined by their particular circumstances in the Labour Force Survey reference week and it is possible that a higher count of the diffident job seekers results.

CHART-5

SPECIAL BENEFIT CLAIMANTS BY TYPE OF BENEFIT, JULY 1971 - SEPTEMBER 1972

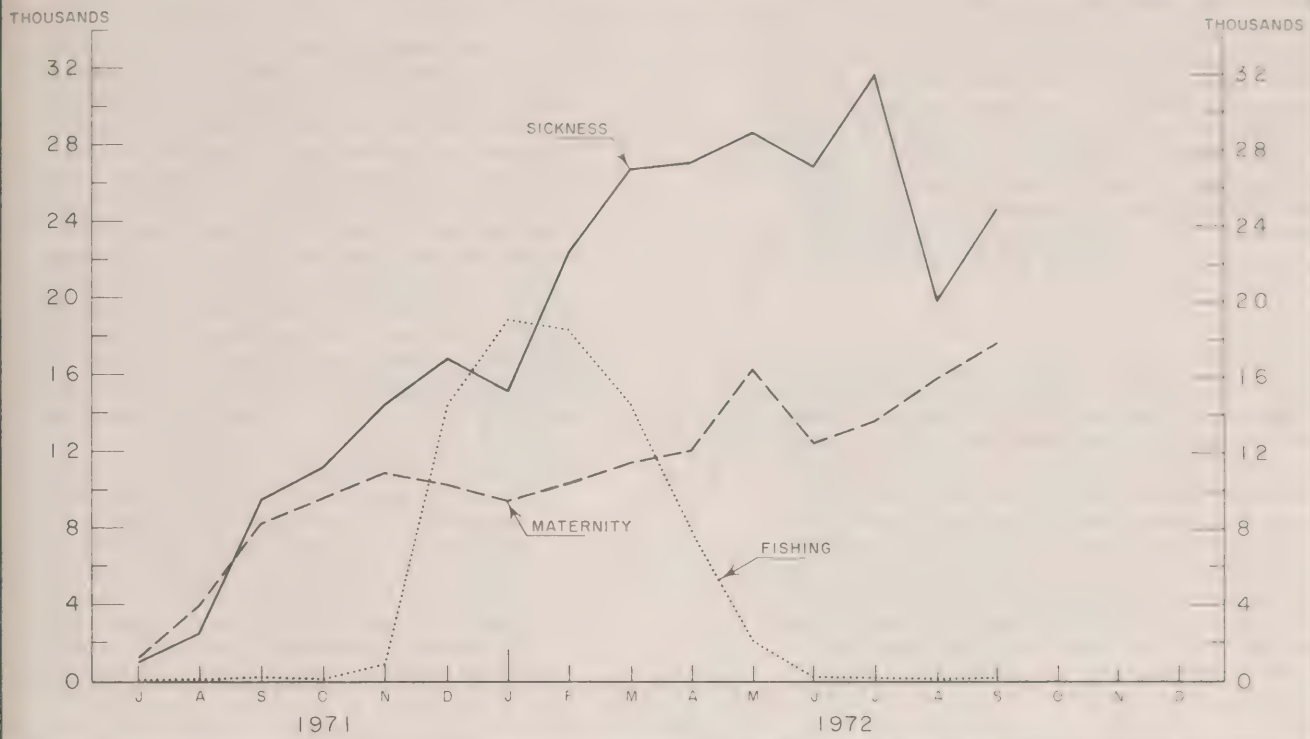
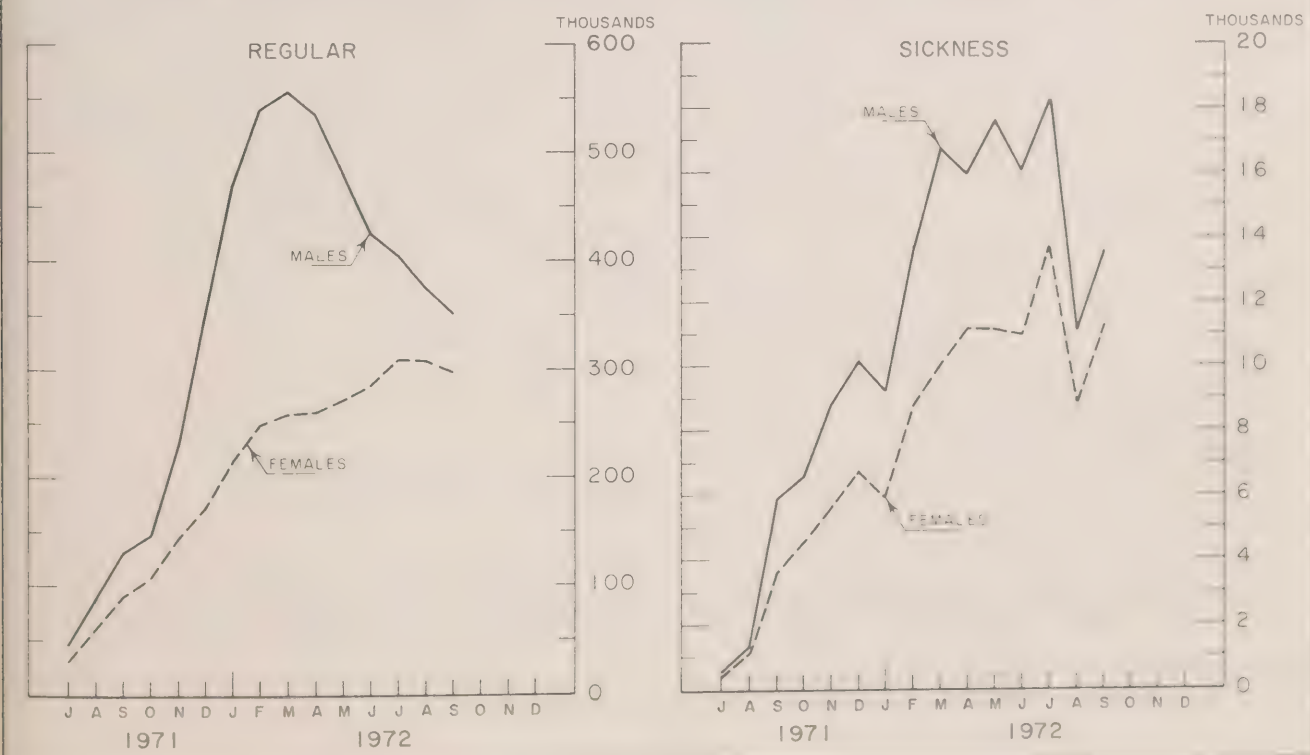


CHART-6

REGULAR AND SICKNESS CLAIMANTS BY SEX, JULY 1971 - SEPTEMBER 1972



Plotted on a monthly basis (Charts 8 and 9) the same data do reveal a higher-than-normal increase in the participation rates of certain sub-groups in the latter half of 1971. This upsurge, which is noted chiefly in the rates for married women and for women in the 25-34 and 35-44 age groups, received considerable attention at the time. While it is impossible to say whether or not the UIC changes had some responsibility, the more important point would seem to be that the rates in question have since resumed the earlier pattern.

Unpublished data which relate current month labour force status to that of the previous month also failed to provide evidence of an increase in short-term working. Through a period of 34 months beginning in January 1970 there is no increase to be detected in the number of women keeping house who move to the labour force sector. The reverse movement also showed a consistent picture. These findings are not conclusive because the statistics have certain quality limitations (hence, not published) but the fact that a three-year time series reveals no change

would seem to indicate that no very large alterations in work patterns are occurring.

There may be some evidence of an increase in short-term working in the data on claim duration.(6) As is shown in Table 2 the increase in the proportion of female claimants is pretty much confined to the short-term categories. If the weeks on claim are in fact a close reflection of the weeks worked to establish the claim, one might conclude that the Act is having some effect on female work patterns. On the other hand, the disproportionate increase in short-term claims could be explained by women withdrawing from the labour force after a short job search, thus going off claim without exhausting all benefits established when working.

(6) Data on the number of weeks worked prior to claim is not yet available for 1972 claimants; we have used the number of weeks on claim as a proxy. It is perhaps worth noting that preliminary tabulations for the last half of 1971 show a higher proportion of females in the major attachment group (20 or more weeks work experience) than in the minor.

CHART-7

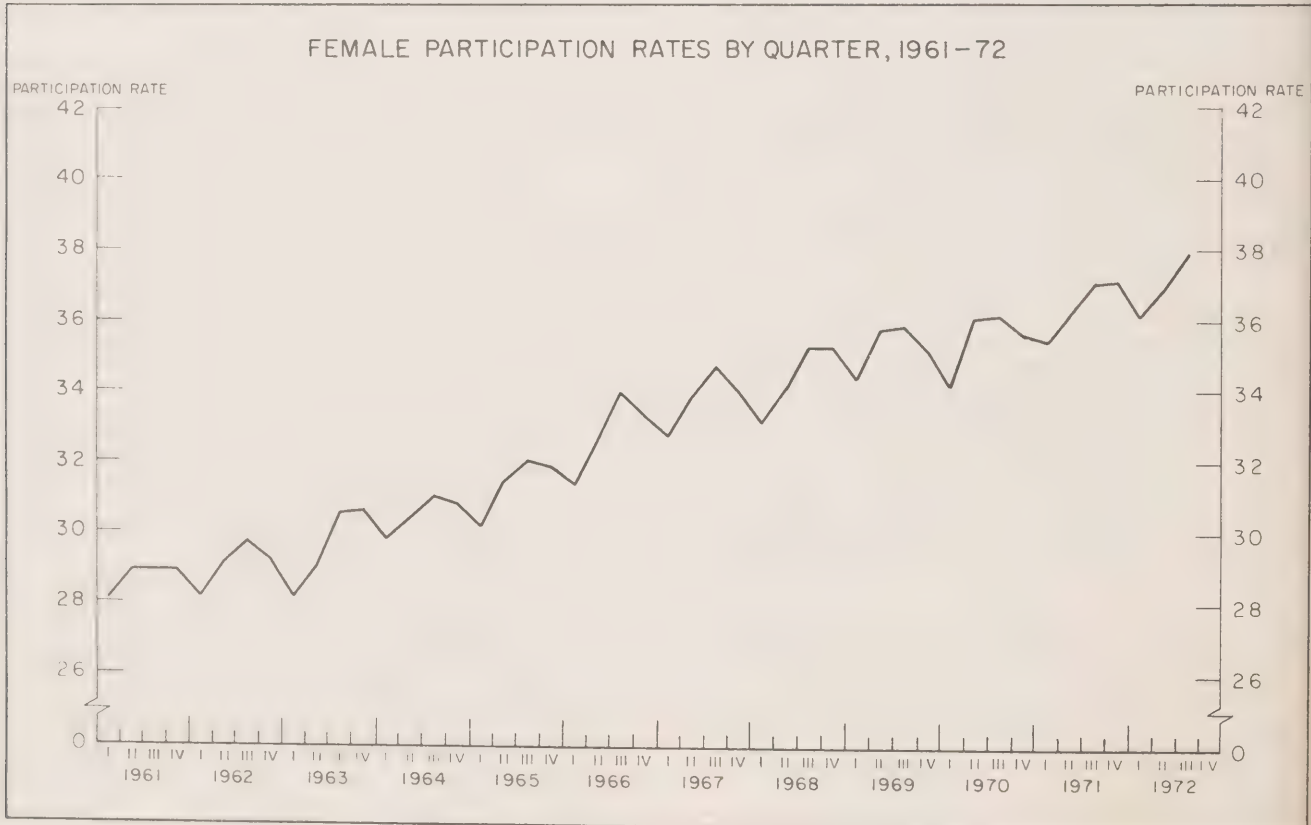


CHART-8

PARTICIPATION RATES FOR FEMALES AGED 25-34 AND 35-44 BY MONTH, 1970-72

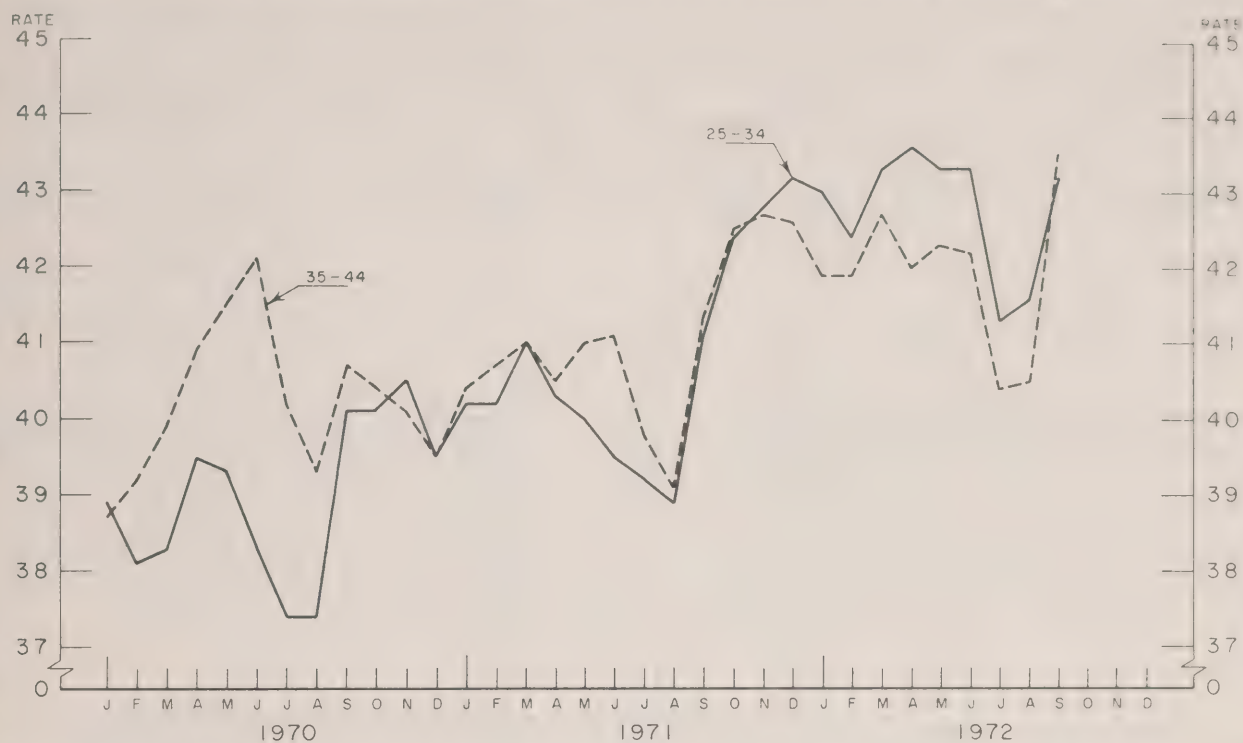


CHART-9

PARTICIPATION RATES FOR FEMALES BY MARITAL STATUS, BY MONTH, 1970-72

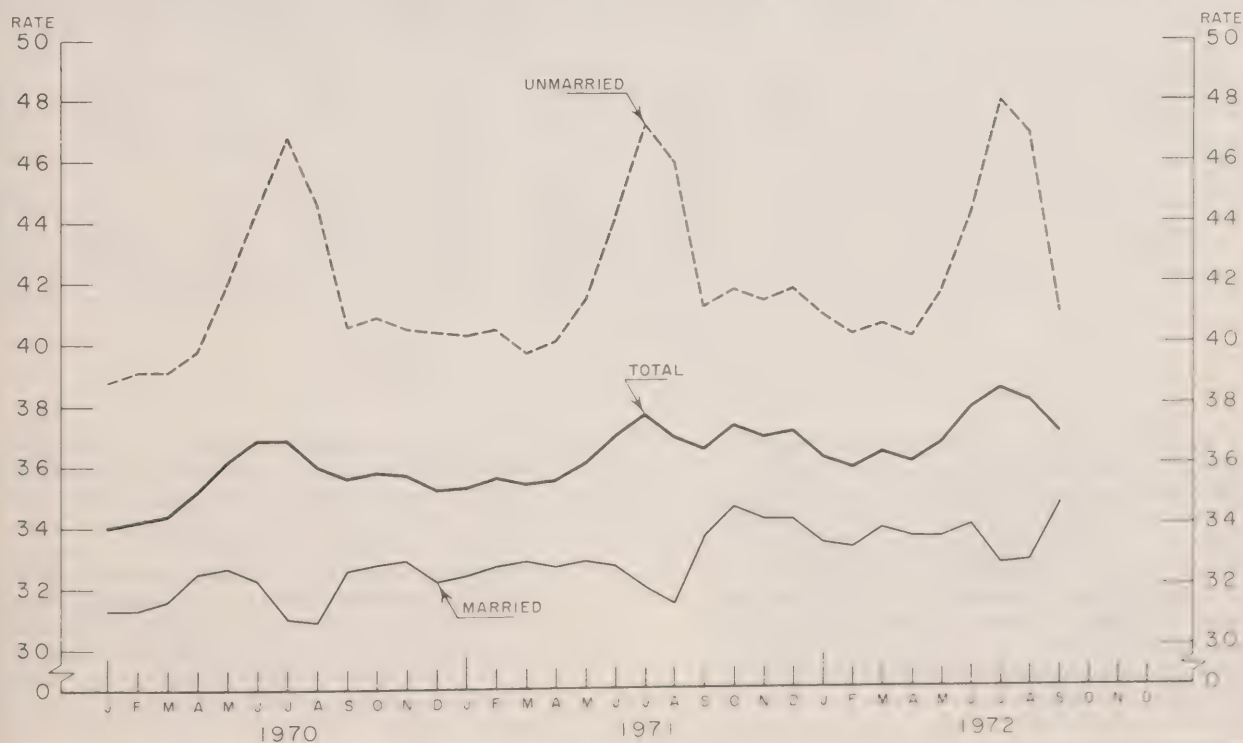


TABLE 2. Proportion of Females in Claimant File

Number of weeks on claim	Month of September			
	1969	1970	1971	1972
1-4 weeks	35.5	33.6	37.8	44.7
5-13 weeks	42.4	40.5	45.0	47.8
14-26 weeks	49.5	44.1	50.4	47.1
27 weeks	48.5	46.3	50.6	49.8

It is also a matter of speculation whether the greater availability of benefits is encouraging employees (both male and female) to leave low-pay jobs and to be reluctant to take new ones. Since females tend to be in low-pay jobs it would not be surprising if their behaviour had been influenced in this way and certain changes in the Labour Force Survey data in the third quarter

are at least consistent with the theory. According to Table 3, employment of persons over 20 years of age failed to increase as it had the year before whereas teenagers increased both their flow into the labour market and their amount of employment. This could be interpreted to mean that more of the poorer jobs had been left for the teenage population.

TABLE 3. Year to Year Increases in Labour Force and Employment for Selected Age Groups

Year to year increases	Age group							
	14-19		20-24		25-44		45-64	
	Labour force	Employ- ment	Labour force	Employ- ment	Labour force	Employ- ment	Labour force	Employ- ment
	'000							
1970-71 - 1st quarter	50	23	62	23	120	71	86	54
2nd "	9	10	53	36	85	73	47	40
3rd "	50	40	69	62	96	102	52	52
1971-72 - 1st quarter	30	28	76	78	137	140	26	40
2nd "	64	76	61	76	152	148	23	16
3rd "	76	80	46	39	130	107	30	26

Table 4 shows that more females in the age group 25-44 came into the labour force and were reasonably successful in getting jobs. On the other hand, there was a definite withdrawal of older females from the labour force and decreasing numbers of younger adults (20-24) both looking for and accepting (or finding) jobs. However, the table also shows an even greater lack of jobs or job acceptance evident in the male population for all adult groups.

Labour demand. - Monthly employment statistics contain no evidence of a higher growth rate for female workers within the past year. In fact, statistics for the first nine months of 1972 show a smaller-than-usual female share of the total employment increase with the ratio of female to total employment increasing by a bare 0.1 percentage points. This compares with 0.7 percentage points in 1971 and an annual average of 0.5 percentage points between 1961 and 1971.

TABLE 4. Year to Year Increases in Labour Force and Employment by Sex for Selected Age Groups

Year to year increases	Age group					
	20-24		25-44		45-64	
	Labour force	Employ- ment	Labour force	Employ- ment	Labour force	Employ- ment
	'000					
<u>Females</u>						
1970-71 - 1st quarter	28	18	68	54	38	29
2nd "	25	17	27	22	25	21
3rd "	35	30	42	40	33	34
1971-72 - 1st quarter	27	26	77	70	15	12
2nd "	25	21	91	82	- 5	- 18
3rd "	22	17	75	64	9	7
<u>Males</u>						
1970-71 - 1st quarter	34	5	52	17	48	26
2nd "	28	19	58	51	22	19
3rd "	34	32	58	62	19	18
1971-72 - 1st quarter	49	52	60	70	11	28
2nd "	36	35	61	66	28	34
3rd "	24	12	55	43	21	19

TABLE 5. Annual Increases in Female Employment and Female Share of Employment

Year	Female employment	Annual increase in female employment	Female share of total employment
	'000		%
1968	2391		31.7
1969	2508	117	32.2
1970	2569	61	32.6
1971	2687	118	33.3
First 9 months 1972 seasonally adjusted	2779	92	33.4

The industry breakdown also suggests some weakening. To see this we look at Table 1 which shows the ratio of female to total employment for the various industry groups through the period of rapid expansion in the sixties. The fact that the ratios change but little means that the expansion was to a con-

siderable extent absorbed by growth in the service industries where female employment was already concentrated. However, it is in the service industries - and, more particularly, in the "non-commercial" sectors (e.g. education, hospitals) - that employment growth has had a definite setback within the

past year. This is partially seen in Table 7 which shows an increase of only 27,000 persons in 1971-72 for all service industries as compared to 135,000 in the previous year. The picture is, in fact, much worse because from other sources it is known that the "commercial" sector (hotels, business services, etc.), where males predominate, is still growing. If these latest trends persist it is evident that growth in female employment will be more difficult to achieve with weaker demand in the traditional stronghold.

According to Table 6, the one area where female employment has been becoming more important over the last two years is the finance, insurance and real estate group. (The table also shows some increase in trade but the trend is less clearly established; the September figure may be an irregular movement.) The gain in the finance group is somewhat offset by the fact that the industry is a relatively small one.

TABLE 6. Ratio of Female to Total Employment by Industry

Industry	Annual 1961	Month of September		
		1970	1971	1972
per cent				
Forestry	1.8	1.7	1.7	2.2
Mining	3.9	5.0	4.8	5.2
Manufacturing	22.9	24.0	23.1	23.6
Construction	3.1	3.4	3.1	3.1
Transportation and utilities	15.3	15.1	14.8	15.2
Trade	36.1	37.7	37.1	39.5(1)
Finance	49.3	53.6	53.2	55.1
Service (commercial)	43.5	40.7	39.4	36.6
Service (commercial and non-commercial)	63.3	62.6	61.2	60.2
Public administration	22.5	24.0	24.9	26.6

(1) May have been an irregular month; in August the ratio was 37.5.

Source: Service (commercial and non-commercial) and public administration figures derived from figures in The Labour Force, Statistics Canada (Catalogue 71-001 Monthly) (Ottawa: Information Canada). Figures for other industry groupings taken from Employment, Earnings and Hours, Statistics Canada (Catalogue 72-002 Monthly) (Ottawa: Information Canada).

TABLE 7. Total Employment by Industry

Industry	Month of September				
	1970	1971	1971 less 1970	1972	1972 less 1971
'000					
Forestry	82	84	2	72	12
Mining	126	130	4	117	13
Manufacturing	1,803	1,825	22	1,845	20
Construction	520	552	32	551	1
Transportation and utilities	703	701	2	740	39
Trade	1,330	1,300	30	1,412	112
Finance	363	375	12	386	11
Service (commercial and non-commercial)	1,999	2,134	135	2,161	27
Public administration	480	498	18	534	36

Source: The Labour Force, Statistics Canada (Catalogue 71-001 Monthly) (Ottawa: Information Canada).

The current period is in several ways a critical one for women. Female participation has still some growth ahead if Canada is to catch up with other countries. The younger age groups are another large source of growth. Meanwhile, women born in the early post-war years are just beginning to move into the 25-34 year age group where male labour force attachments become very strong; this suggests the outlook is for increasing competition for employment. Thus, an attempt should be made to look ahead as well as back in assessing changing labour market conditions affecting women.

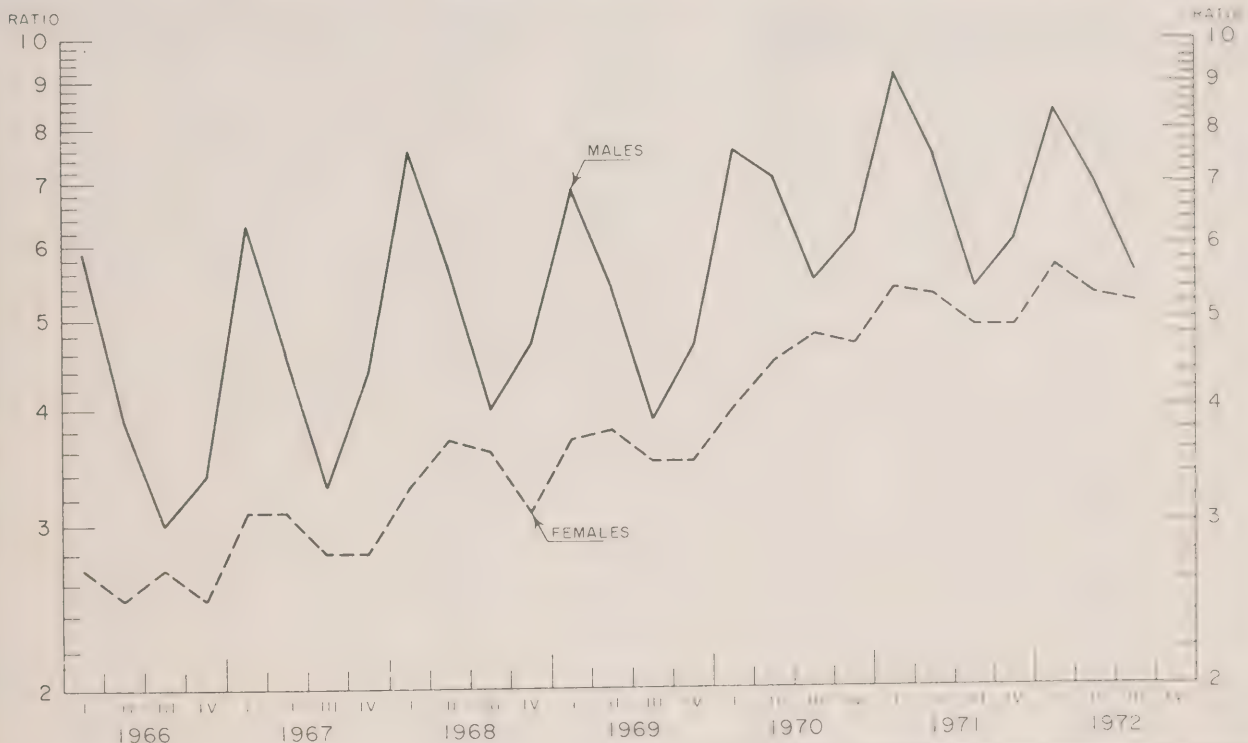
Unemployment. - Unemployment rates for females began edging up in the late sixties, rose quite sharply in 1970 and continued into 1971 and 1972 at rates generally above 5 %. This is a level never previously recorded for

females in Canada; 4.7 % was the peak in the depression year of 1961, and even then the rate was below 4 % through much of the year. Through the mid-sixties, when the female labour force grew more rapidly than now, the unemployment rate held steady at 2 1/2 to 3 %.

It is still true that women in Canada have lower unemployment rates than men, especially in winter when there are few jobs for outdoor workers (predominantly male). However, the difference between the male and female rates has been declining in recent years. The seasonality variance in male unemployment is being reduced; female unemployment has been steadily rising since 1966 while the upward movement in male unemployment has been less regular. In the first half of 1972 female unemployment rates rose slightly while male rates dropped slightly below the level of the previous year (see Chart 10).

CHART-10

GROWTH OF MALE AND FEMALE UNEMPLOYMENT RATES BY QUARTER, 1966-72



There are several reasons why female unemployment has been increasing. For one, the increase in the numbers of young women, including summer students, brings in a group which is likely to be quite determined in their search for work, hence certain to be counted in the unemployment statistics. This is not necessarily the case with certain traditional types of female workers who, on losing a job, have often returned to housekeeping,

thus having no effect on the statistics. Probably, too, this latter phenomenon is fading in importance as, over the longer run, the working wife has won greater acceptance and her labour force attachment is strengthened; the stronger attachment means less tendency to withdraw from the labour market when a job is terminated. The tighter job market has also been a factor in raising female unemployment over the past several years.

The influence of the new UIC Act could be one factor which explains why the female rate continued to rise in 1972 when the male rate was temporarily halted. The shortening of the work period required for eligibility might increase the incentive to look for work and could be expected to apply chiefly to women since most men are already either working or looking for work. On the other hand, the employment statistics examined above show some slippage in the competitive position of females and it is quite possible that this has been the major factor.

Summary and Conclusions

1. The number of female claimants has increased since the new Act came into effect. Maternity and illness provisions have been used and also the provisions which allow claims after relatively short work periods. But there is little evidence of an alteration in the behaviour of the female labour force.
2. The ratio of regular female claimants to unemployed was substantially increased

with the new Act thus indicating that there were more claimants outside of the official unemployed definition in 1972. However, there is no measure of the number in this group nor of its composition, i.e., how many sincerely wanted jobs but did not know how to seek them and how many remained marginally available in order to collect benefits. After the new Act the number of regular male claimants also exceeded the number of unemployed.

3. Female participation rates continued to increase in the period under review in keeping with the 1965-70 trend line (which was somewhat below the trend for the 1962-65 period). The growth was mainly for married females whose participation rate is still below that of other countries.
4. Employment opportunities appear to be becoming somewhat more restricted for women and little headway has been made in the traditionally male fields. Female unemployment has increased as would be expected from increased participation and a tightened job market.

APPENDIX

TABLE A1. U.I.C. Claimants and LFS Unemployed by Sex, by Month, 1969-72

Year and month	U.I.C. claimants		LFS unemployed		Ratio	
	Male	Female	Male	Female	Male	Female
			'000			
1969 - January	447,589	168,371	368	99	1.216	1.701
February	454,638	176,384	380	93	1.196	1.897
March	428,262	165,886	362	86	1.183	1.929
April	364,088	162,434	341	91	1.068	1.785
May	195,578	109,404	289	97	.677	1.128
June	167,770	109,116	274	109	.612	1.001
July	167,755	110,864	254	95	.660	1.167
August	158,725	109,024	224	94	.709	1.160
September	150,416	109,142	190	89	.792	1.226
October	166,734	113,301	218	96	.765	1.180
November	222,341	126,857	259	95	.858	1.335
December	374,411	162,286	296	87	1.265	1.865
1970 - January	475,819	183,640	381	104	1.249	1.766
February	500,789	193,627	418	108	1.198	1.793
March	507,069	198,076	443	99	1.145	2.001
April	488,252	202,471	438	106	1.115	1.910
May	349,776	155,635	397	116	.881	1.342
June	289,643	152,248	384	145	.754	1.050
July	282,834	156,534	371	147	.762	1.065
August	247,609	161,093	320	128	.774	1.259
September	233,745	157,383	281	117	.832	1.345
October	240,766	157,931	293	126	.822	1.253
November	305,524	174,951	347	129	.880	1.356
December	466,691	205,072	412	126	1.133	1.628
1971 - January	597,514	246,564	518	150	1.154	1.644
February	627,113	260,559	523	152	1.199	1.714
March	597,032	259,470	514	136	1.162	1.908
April	560,857	258,095	509	150	1.102	1.721
May	318,539	177,770	404	139	.788	1.279
June	247,302	172,640	394	157	.628	1.100
July	231,197	177,745	368	146	.628	1.217
August	230,331	180,188	317	138	.727	1.306
September	242,380	190,368	296	138	.819	1.379
October	242,160	193,739	294	153	.824	1.266
November	318,451	219,844	357	146	.892	1.506
December	452,238	236,944	402	128	1.125	1.851
1972 - January	559,494	267,502	495	170	1.130	1.574
February	615,955	295,988	470	157	1.311	1.885
March	614,911	298,646	485	157	1.268	1.902
April	577,532	296,360	452	140	1.278	2.117
May	508,217	305,519	400	152	1.271	2.010
June	442,930	309,698	398	170	1.113	1.822
July	424,541	337,492	384	159	1.106	2.123
August	387,094	334,665	346	157	1.119	2.132
September	364,775	327,437	307	152	1.188	2.154

Source: U.I.C. figures taken from Statistical Report on the Operation of the Unemployment Insurance Act, Statistics Canada (Catalogue 73-001 Monthly) (Ottawa: Information Canada); LFS figures taken from Special Table 1 for 1969 and 1970 and for 1971 and 1972 from The Labour Force, Statistics Canada (Catalogue 71-001 Monthly) (Ottawa: Information Canada).

TABLE A2. U.I.C. Claimants by Type of Benefit, by Sex, by Month, July 1971 - September 1972

Year and month	Total				Males			Females			
	Regular	Sickness	Maternity	Fishing	Regular	Sickness	Fishing	Regular	Sickness	Maternity	Fishing
1971 - July	77,964	998	1,181	8	46,182	548		31,782	450	1,181	-
August	149,990	2,436	3,976	42	88,940	1,301	41	61,050	1,135	3,976	1
September	223,396	9,557	8,188	161	131,758	5,932	156	91,638	3,625	8,188	5
October	255,475	11,150	9,595	104	147,730	6,591	104	107,745	4,559	9,595	-
November	375,168	14,443	10,890	838	230,218	8,817	831	144,950	5,626	10,890	7
December	525,347	16,885	10,250	14,356	352,853	10,164	13,998	172,494	6,721	10,250	358
1972 - January	685,142	15,165	9,431	18,909	470,020	9,203	18,575	215,122	5,962	9,431	334
February	790,061	22,465	10,326	18,396	540,307	13,710	18,127	249,754	8,755	10,326	269
March	815,459	26,804	11,450	14,493	556,432	16,781	14,360	259,027	10,023	11,450	133
April	797,341	27,139	12,099	7,851	536,316	15,958	7,796	261,025	11,181	12,099	55
May	754,254	28,776	16,328	2,066	481,360	17,622	2,026	272,894	11,156	16,328	40
June	711,355	26,987	12,486	160	425,642	16,034	160	285,713	10,953	12,486	-
July	715,848	31,905	13,697	101	405,891	18,205	100	309,957	13,700	13,697	1
August	685,742	19,966	15,953	98	375,911	11,089	94	309,831	8,877	15,953	4
September	649,463	24,828	17,821	100	351,100	13,582	93	298,363	11,246	17,821	7

Source: Statistical Report on the Operation of the Unemployment Insurance Act, Statistics Canada (Catalogue 73-001 Monthly)
(Ottawa: Information Canada).

TABLE A3. Female Ratio of Claimants by Weeks on Claim, by Month, 1969-72

Year and month	Number of weeks on claim			
	1-4	5-13	14-26	27+
1969 - January	22.3	24.6	46.5	48.4
February	25.8	22.8	38.7	51.5
March	25.9	24.8	28.0	50.1
April	26.8	29.8	30.5	49.9
May	31.4	33.2	38.0	51.1
June	34.9	37.5	44.4	47.5
July	33.9	40.2	46.2	46.2
August	31.5	43.2	45.4	49.8
September	35.5	42.4	49.5	48.5
October	32.5	44.0	48.5	50.2
November	28.2	41.4	47.6	48.3
December	23.3	32.1	48.1	50.1
1970 - January	23.5	24.6	42.6	48.7
February	25.5	22.9	36.3	47.0
March	24.6	25.0	27.8	46.4
April	26.3	27.5	26.3	43.9
May	27.5	27.5	30.9	43.1
June	29.7	31.4	35.8	44.4
July	29.3	35.8	37.1	42.5
August	33.8	40.4	39.5	44.1
September	33.6	40.5	44.1	46.3
October	32.7	40.5	45.4	46.0
November	27.7	39.2	46.7	47.1
December	22.6	32.1	46.5	48.0
1971 - January	24.4	25.4	43.6	47.4
February	27.1	23.8	37.6	47.9
March	27.6	26.9	28.8	48.2
April	27.2	30.3	28.2	48.3
May	33.4	33.7	34.5	47.2
June	36.7	39.7	43.7	46.8
July	37.6	44.6	47.6	48.0
August	38.1	44.3	49.2	49.6
September	37.8	45.0	50.4	50.6
October	37.2	45.3	52.9	51.0
November	31.2	41.1	51.5	52.5
December	23.8	32.7	44.3	53.5
1972 - January	25.8	28.6	39.9	52.7
February	31.4	26.1	36.6	50.3
March	34.7	28.6	29.9	47.4
April	39.4	32.3	27.5	44.1
May	38.7	34.5	33.8	47.6
June	45.9	44.6	34.2	30.2
July	47.4	44.8	42.6	32.2
August	42.5	47.7	45.2	49.3
September	44.7	47.8	47.1	49.8

Source: Derived from data published in Statistical Report on the Operation of the Unemployment Insurance Act, Statistics Canada (Catalogue 73-001 Monthly) (Ottawa: Information Canada).

TABLE A4. Labour Force Participation Rates by Sex with Female Marital Status, by Quarter, 1961-72

Year and quarter	Males	Females		
		Total	Married	Unmarried
1961 - 1st quarter	78.7	28.1	19.9	43.6
2nd "	80.0	28.9	20.9	44.0
3rd "	81.7	28.9	20.8	44.9
4th "	78.8	28.9	21.6	43.3
1962 - 1st "	77.7	28.2	20.8	42.6
2nd "	79.3	29.1	21.7	43.0
3rd "	81.2	29.7	21.7	44.9
4th "	78.0	29.2	22.2	42.5
1963 - 1st "	76.9	28.2	21.2	41.4
2nd "	78.6	29.0	22.3	41.3
3rd "	80.7	30.5	23.1	44.4
4th "	77.7	30.6	23.9	43.1
1964 - 1st "	76.4	29.8	23.3	41.6
2nd "	78.2	30.4	24.2	41.9
3rd "	80.7	31.0	24.2	44.1
4th "	77.2	30.8	24.9	41.5
1965 - 1st "	76.0	30.2	24.4	40.7
2nd "	78.0	31.4	25.6	41.5
3rd "	80.5	32.0	24.9	44.6
4th "	76.9	31.8	25.9	42.3
1966 - 1st "	76.0	31.3	25.6	41.5
2nd "	77.8	32.6	26.5	43.3
3rd "	80.4	33.9	27.0	46.1
4th "	76.8	33.2	28.1	42.2
1967 - 1st "	75.7	32.7	27.6	41.6
2nd "	77.8	33.8	28.2	43.4
3rd "	80.4	34.7	28.3	45.8
4th "	76.0	34.0	29.2	43.9
1968 - 1st "	74.7	33.1	28.4	41.3
2nd "	77.6	34.1	29.5	42.2
3rd "	79.6	35.2	29.6	45.0
4th "	76.0	35.2	31.2	42.2
1969 - 1st "	75.0	34.4	30.8	40.7
2nd "	77.6	35.7	31.3	43.2
3rd "	78.8	35.8	30.7	44.4
4th "	75.1	35.1	32.0	40.4
1970 - 1st "	74.1	34.2	31.4	39.0
2nd "	77.1	36.1	32.5	42.1
3rd "	78.9	36.2	31.5	44.0
4th "	75.4	35.6	32.6	40.6
1971 - 1st "	74.3	35.4	32.7	40.2
2nd "	76.7	36.2	32.8	41.9
3rd "	78.5	37.0	32.3	44.8
4th "	75.0	37.1	34.3	41.7
1972 - 1st "	74.4	36.2	33.5	40.6
2nd "	77.0	36.9	33.7	42.1
3rd "	78.5	37.9	33.4	45.3

Source: Derived from figures published by the Labour Force Survey.

TABLE A5. Female Participation Rates for Selected Age Groups by Month, 1970-72

Year and month	14-19	20-24	25-34	35-44	45-54	45-64
1970 - January	25.8	56.8	38.9	38.7	38.8	35.2
February	26.1	56.9	38.1	39.2	38.6	35.6
March	26.2	57.3	38.3	39.9	39.1	35.4
April	26.8	57.1	39.5	40.9	40.2	36.8
May	29.7	60.6	39.3	41.5	40.4	36.6
June	35.0	61.0	38.3	42.1	40.1	36.5
July	41.5	60.0	37.4	40.2	38.7	35.1
August	37.8	59.2	37.4	39.3	38.3	34.7
September	28.3	58.6	40.1	40.7	40.4	36.5
October	30.0	57.9	40.1	40.4	40.2	36.7
November	28.7	58.0	40.5	40.1	40.3	36.9
December	28.4	58.3	39.5	39.5	39.5	36.2
1971 - January	28.0	58.1	40.2	40.4	40.3	36.2
February	28.1	58.3	40.2	40.7	40.4	36.6
March	26.7	57.2	41.0	41.0	41.0	36.4
April	27.6	57.4	40.3	40.5	40.4	37.0
May	28.4	61.3	40.0	41.0	40.5	36.9
June	33.6	61.6	39.5	41.1	40.3	37.0
July	42.0	61.4	39.2	39.8	39.5	36.0
August	39.5	61.4	38.9	39.1	39.0	35.3
September	29.5	60.4	41.1	41.3	41.2	37.4
October	30.1	61.1	42.4	42.5	42.4	38.0
November	29.1	60.6	42.8	42.7	42.8	36.9
December	30.0	60.0	43.2	42.6	43.0	37.0
1972 - January	28.1	58.9	43.0	41.9	42.5	36.3
February	27.4	58.6	42.4	41.9	42.2	36.2
March	27.4	59.5	43.3	42.7	43.1	36.4
April	28.1	57.8	43.6	42.0	42.9	36.1
May	29.8	61.4	43.3	42.3	42.9	35.5
June	35.1	63.8	43.3	42.2	42.8	36.0
July	44.2	63.4	41.3	40.4	40.9	35.3
August	42.6	62.2	41.6	40.5	41.1	35.1
September	29.6	59.5	43.2	43.5	43.4	36.9

APERÇU SUR LES STATISTIQUES FAMILIALES DES CHÔMEURS

Jean-Marc Lévesque*

Introduction

Depuis le début des années 60, la section de l'enquête sur la population active amasse à tous les trois mois des données sur l'unité familiale des chômeurs.

Cet article se divise en deux parties. La première décrit brièvement les concepts utilisés dans les statistiques familiales et informe le lecteur de l'éventail de renseignements publiés à ce sujet dans le bulletin intitulé "La main-d'oeuvre", (n° de catalogue 71-001). On y trouve aussi une analyse sommaire des données. La deuxième partie montre comment les facteurs saisonniers du chômage affectent les divers membres de la famille.

Statistiques familiales

Concepts. - Les concepts utilisés pour les statistiques mensuelles tirées de l'enquête sur la population active s'appliquent également aux statistiques familiales. Par exemple, la définition du chômeur est la même. Il y a cependant trois concepts qui s'appliquent plus particulièrement aux statistiques familiales. Il s'agit des concepts de famille, de non-membre de famille et de chef de famille qui ne sont utilisés que dans le contexte des statistiques familiales.

Le terme famille réfère à un groupe de deux personnes ou plus qui vivent ensemble dans le même logement et qui sont apparentées par le sang, le mariage ou l'adoption.

La catégorie "non-membre de famille" comprend les individus qui ne sont pas apparentés à aucun autre individu dans l'unité de logement sélectionnée. Les individus vivant seuls font partie de cette catégorie. Ces personnes sont exclues des tableaux portant sur les unités familiales.

Le troisième concept, celui de chef de famille, tient un rôle clef dans les statistiques familiales puisque les liens parentaux sont définis en fonction de cette personne. En théorie, le chef de famille est la personne qui a la responsabilité financière du foyer. En pratique, cette personne est toujours l'époux sauf si celui-ci ne réside pas avec sa famille ou est dans les Forces armées. (En fait, 5.4 % des chefs de ménage étaient des femmes en 1971.)

Éventail des renseignements publiés. -

La nouvelle version du bulletin intitulé "La main-d'oeuvre" (n° de catalogue 71-001) contient cinq tableaux sur la situation familiale du chômeur. Le premier de ces tableaux donne le lien parental du chômeur alors que les quatre autres réfèrent aux unités familiales (les "non-membres" sont exclus de ces tableaux).

Le premier tableau fait la distribution (en milliers et en pourcentages) des chômeurs selon les catégories parentales suivantes: "chefs de famille", "fils ou filles célibataires", "autres parents" (cette catégorie comprend: épouses, fils ou filles mariés, cousins, etc.) et "non-membres de famille". Les autres tableaux identifient la famille des chômeurs selon que cette famille compte ou ne compte pas de personnes occupées, selon que le chef de famille est chômeur ou non, selon la taille de la famille et selon le nombre d'enfants âgés de 24 ans ou moins ne participant pas à la population active. Le cinquième tableau donne la distribution des familles où le chef est chômeur au niveau des cinq grandes régions.

Analyse des données. - Pour décrire brièvement l'évolution des caractéristiques familiales des chômeurs durant la période 1961-71, nous avons pris les moyennes annuelles de trois années (1961, 1966 et 1971 lorsque ceci était possible). La distribution des chômeurs selon le lien parental a quelque peu variée au cours des dix dernières années (voir Tableau 1). Ainsi, alors que 46.3 % des chômeurs étaient chefs de famille en 1961, ceux-ci n'étaient plus que 37.0 % du total en 1971. Ce sont les groupes "fils et filles célibataires" (+ 3.5 %) et "autres parents" (+ 4.6 %) qui ont enregistré les hausses les plus élevées au cours de ces dix années.

Le phénomène de la baisse de la proportion des chefs de famille chômeurs et de la hausse du groupe "autres parents", est dû à l'augmentation du groupe "épouse de chef de famille" inclus sous le titre "autres parents". En effet, la proportion des épouses dans le groupe de chômeurs est passée de 4.5 % à 9.4 % entre 1963(1) à 1971, alors que

(1) La distinction des épouses dans le groupe autres parents n'était pas faite en 1961 et 1962.

* Section de l'enquête sur la population active, division du travail.

la proportion des autres parents (sans les épouses) a diminué de 8.5 % à 6.5 % au cours de la même période. Cette augmentation des épouses dans le rang des chômeurs s'est produite au cours de la période où le taux d'activité des femmes mariées passait de 24.1 % (1964)(2) à 33.0 % (1971), et que leur taux de chômage augmentait de 2.0 (1964) à 3.5 (1971).

Cette augmentation dans la proportion des épouses-chômeuses correspond donc à un changement dans la structure de la population active.

(2) La moyenne annuelle de 1963 du taux d'activité chez les femmes mariées n'est pas disponible.

TABLEAU 1. Proportions annuelles des catégories parentales des chômeurs

Année	Total	Chefs de famille	Fils et filles célibataires	Autres parents			Non-membres de famille
				Total	Épouses	Autres qu'épouses	
pourcentage							
1971	100.0	37.0	37.2	15.9	9.4	6.5	9.9
1966	100.0	41.4	36.8	13.6	6.1	7.5	8.2
1963	100.0	44.6	33.8	13.0	4.5	8.5	8.6
1961	100.0	46.3 (1)	33.7 (1)	11.3 (1)	.. (2)	.. (2)	8.7 (1)

(1) Pourcentage calculé à partir des chiffres arrondis.

(2) La distinction des épouses dans le groupe autres parents n'était pas faite en 1961 et 1962.

La hausse dans la proportion des fils et filles célibataires parmi les chômeurs correspond à une augmentation du groupe 14-24 dans la pyramide d'âge entre 1961 et 1971 (voir Tableau 2). De plus, ce groupe (14-24) a connu une augmentation de son taux d'activité (d'une moyenne annuelle de 49.2 en 1961 il est passé à 50.7 en 1971) et de son taux de chômage (il passait de 10.9 en 1961 à 11.4 en 1971) alors que le taux de chômage de l'ensemble de la population diminuait (de 7.1 à 6.4). On retrouve donc ici l'effet prépondérant des hauts taux de natalité de l'après-guerre, mais aussi l'effet du changement dans l'activité économique de ce groupe et de l'augmentation du taux de chômage.

TABLEAU 2. Pourcentage de la population 14-24

Année	14-19	20-24	14-24
pourcentage			
1971	11.9	8.8	20.7
1966	11.1	7.3	18.4
1961	9.7	6.5	16.2

Source: Pourcentage calculé à partir des recensements de 1961, 1966 et 1971.

La répartition des familles comptant un chômeur ou plus selon le nombre de personnes occupées a aussi varié au cours des dix dernières années (voir Tableau 3). La proportion des familles de chômeurs ne comptant aucune personne occupée a diminué, passant de 45 % à 36 %, alors que la proportion des familles comptant au moins une personne occupée a augmenté de 55 % à 64 %. Ce sont les familles comptant une personne occupée qui ont augmenté le plus (de 33 % en 1961 à 39 % en 1971).

La taille des familles de chômeurs a diminué (voir Tableau 4). Alors qu'en 1961 34 % des familles comptant au moins un chômeur n'étaient composées que de deux ou trois membres, cette proportion a augmenté, en 1971, à 38 %. Les familles de huit membres ou plus suivaient un mouvement opposé, passant d'une proportion de 14 % en 1961 à 10 % en 1971. Ces mêmes mouvements se retrouvaient chez les catégories intermédiaires: les familles de quatre ou cinq personnes augmentaient de 2 % alors que celles de six ou sept personnes diminuaient de 2 %.

La proportion des familles comptant un enfant(3) et affectées par le chômage a augmenté (voir Tableau 5); elle est passée de

(3) Personne de 24 ans ou moins ne faisant pas partie de la population active.

TABLEAU 3. Proportions des familles comptant un chômeur ou plus selon le nombre de personnes occupées dans la famille, Canada

Année	Familles de chômeurs sans personne occupée	Familles comptant une personne occupée ou plus			
		Total	1 personne occupée	2 personnes occupées	3 personnes occupées et plus
		pourcentage			
1971	36	64	39	16	8
1966	38	62	36	17	8
1961	45	55	33	15	7

TABLEAU 4. Proportions des familles comptant un chômeur ou plus selon la taille de la famille, Canada, 1961, 1966 et 1971

Année	Selon la taille de la famille			
	2-3 membres	4-5 membres	6-7 membres	8 membres et plus
pourcentage				
1971	38	36	16	10
1966	34	34	19	13
1961	34	34	18	14

19 % en 1961 à 24 % en 1971. Cependant cette proportion est restée la même entre 1961 et 1966(4). On observe un mouvement similaire pour les familles plus nombreuses mais dans le sens contraire. Ainsi, la proportion des familles comptant cinq enfants ou plus est passée de 11 % en 1961 à 7 % en 1971. De 1961 à 1966, la proportion est demeurée à 11 %.

enfant, un enfant ou deux enfants. Cependant, la définition n'est pas la même car dans l'enquête sur la population active, on entend par enfant, les individus âgés de 24 ans ou moins, célibataires (ce qui correspond à la définition du recensement) mais qui de plus ne sont pas dans la population active (ce qui n'est pas le cas du recensement). Cette distinction est faite dans l'enquête sur la population active afin de mieux mesurer le nombre de personnes entièrement à la charge du soutien de la famille.

TABLEAU 5. Proportions des familles comptant un chômeur ou plus selon le nombre d'enfants(4), Canada, 1961, 1966 et 1971

Année	Aucun enfant	1 enfant	2 enfants	3-4 enfants	5 enfants ou plus
pourcentage					
1971	34	24	18	17	7
1966	36	19	16	19	11
1961	35	19	16	18	11

(4) Les chiffres des recensements de 1961 et de 1966 montrent qu'il y a eu une légère baisse au cours de cette période dans la proportion des familles comptant aucun enfant, un enfant ou deux enfants. Cependant, la définition n'est pas la même car dans l'enquête sur la population active, on entend par enfant, les individus âgés de 24 ans ou moins, célibataires (ce qui correspond à la définition du recensement) mais qui de plus ne sont pas dans la population active (ce qui n'est pas le cas du recensement). Cette distinction est faite dans l'enquête sur la population active afin de mieux mesurer le nombre de personnes entièrement à la charge du soutien de la famille.

Facteurs saisonniers

La saisonnalité du chômage affecte différemment les individus selon leur lien parental. Cette partie décrit les facteurs saisonniers. Premièrement, il sera démontré que ces facteurs saisonniers sont différents d'une catégorie à l'autre et que deuxièmement, ils ont varié de façon différente au cours des dix années.

Les facteurs saisonniers qui apparaissent dans les graphiques ont été calculés à partir d'un programme d'ordinateur(5) qui divise une série chronologique en trois composantes: la tendance sous-jacente, les mouvements irréguliers et les mouvements saisonniers. Ce sont ces mouvements saisonniers, exprimés en pourcentage de la sommation des mouvements saisonniers de l'année qui apparaissent sur les graphiques.

Prenons le mois de janvier 1971 afin d'illustrer de façon concrète ce que représente le facteur saisonnier. L'ordinateur a évalué le niveau de chômage à 567,000 (la composante tendancielle), le rapport (ou effets) des mouvements irréguliers à .99 et le facteur saisonnier à 1.19. Si nous multiplions la composante tendancielle par ces deux facteurs, nous retrouvons le chiffre réel des chômeurs ($567,000 \times 1.19 \times .99 = 668,000$).

Le graphique 1 montre l'évolution de l'influence des saisons sur les différents

(5) Version X-11 utilisée par le bureau du recensement américain. Il faut noter ici qu'on utilise la version de désaisonnalisation de données trimestrielles, la collecte de données familiales se faisant à tous les trois mois.

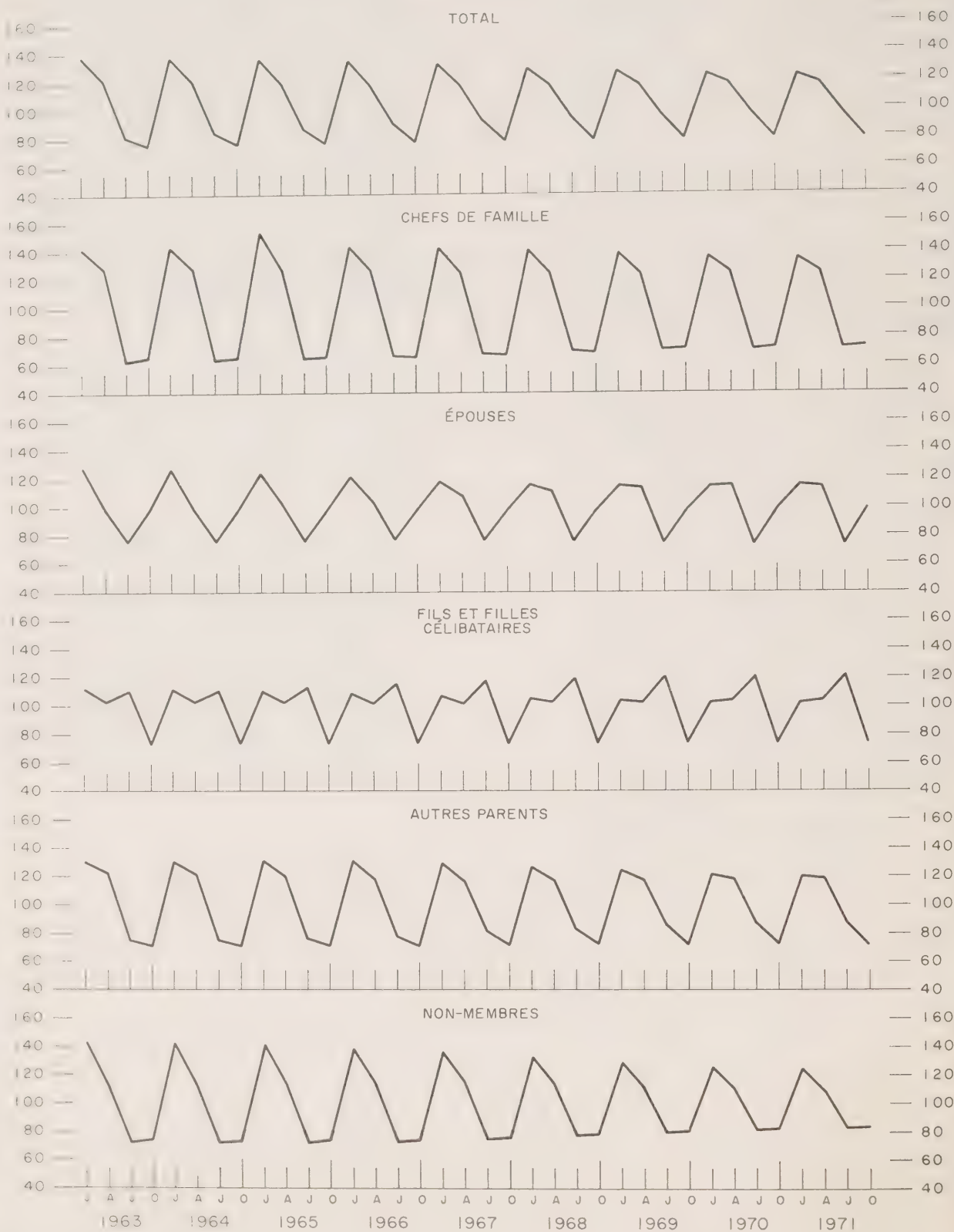
groupes de chômeurs durant la période 1963-71. Pour l'ensemble des chômeurs, le facteur saisonnier pour 1963 était évalué à 138.12 et celui de 1971 à 122.62. Dans cette même série (chômage total), le facteur attribué au mois d'octobre est passé de 75.26 en 1963 à 77.97 en 1971. Nous remarquons donc que la marge entre les facteurs saisonniers a diminué au cours de cette période. Les graphiques 2 et 3 nous font mieux apprécier le changement dans l'écart entre le mois où la saisonnalité est la plus élevée et celui où elle est la moins élevée. Ainsi, si nous poursuivons avec la même série, l'écart entre janvier et octobre 1963 était de 62.86 et entre les mêmes mois de 1971 de 44.65 (voir graphique 2). La différence entre les écarts saisonniers a donc diminué au cours de cette période de 18.21 (voir graphique 3).

Dans le graphique 1 nous pouvons voir que le facteur saisonnier pour tous les groupes est le plus élevé au mois de janvier sauf dans le cas des fils et filles célibataires où il est plus élevé au mois de juillet. Le phénomène scolaire explique ce manque de synchronisation avec les autres groupes.

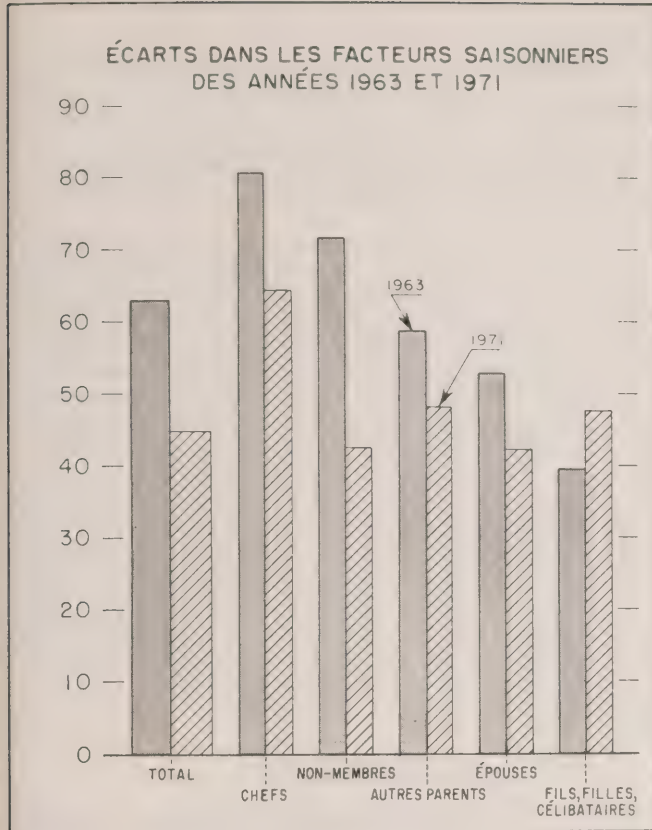
En 1963 et 1971, les variations saisonnières affectent le plus les chefs de famille alors que ce sont les fils et filles célibataires qui le sont le moins en 1963, et les épouses de chef de famille en 1971 (voir graphique 2).

Dans le graphique 3, nous pouvons voir que le facteur saisonnier a diminué au cours de la période pour tous les groupes sauf les fils et filles célibataires. La plus grande diminution de la saisonnalité du chômage au cours de cette période s'est produite pour le groupe "non-membres" de famille.

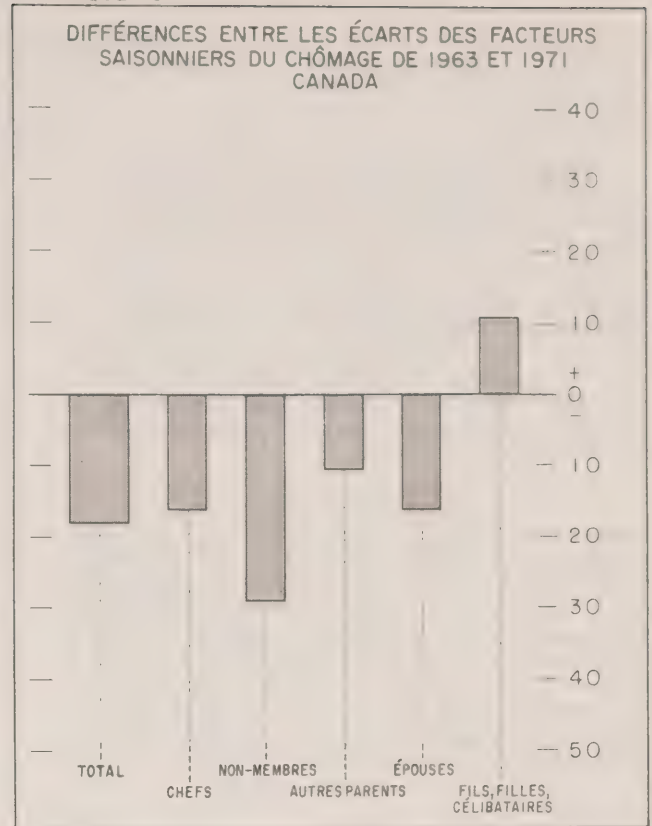
FACTEURS SAISONNIERS, MOYENNES MOBILES 3 X 5, CHÔMAGE, CANADA, 1963 À 1971



GRAPHIQUE -2



GRAPHIQUE -3



REASONS FOR LEAVING LAST JOB

Bruce MacDonald*

How do people become unemployed? Common sense suggests a variety of circumstances ranging from voluntary quits in search of a better job to wholly involuntary separations as the job itself disappears. Or a person may leave the job to begin or resume some non-labour market activity (such as school or housework) to show up as "unemployed" only when re-entering the labour market in search of a job. This note reports the results of a recent survey which gathered data on reasons for leaving last job.(1)

Because the interest centres on the unemployed the survey did not attempt to cover all job-leavers in a given reference period. Such a total would include persons leaving for a new job with no interval of unemployment and those leaving the labour force as they left the job. Coverage is restricted to the segment of the population which experienced some unemployment (defined as "without jobs and seeking work") during the calendar year 1971, excluding persons with no previous job. What were their reasons for leaving?

The Survey Population

Estimates provided by this survey show a total of 2,018,000 Canadians "without jobs and seeking work" at some time in 1971. Deducting approximately 300,000 seeking first jobs, the survey population is 1,734,000.

Before turning to the analysis it should be noted that the statistics are much influenced by the nature of the survey population. For example, almost half the total (46 %) were under 25 years of age. This is not unexpected since young people account for a disproportionate share of unemployment (annual averages derived from the 12 monthly surveys yield the same 46 % for youth); this means that the job-leavers under examination are heavily weighted by persons with no great length of attachment to their jobs or even to the labour market. Allowance for seasonal workers and the chronically unemployed adds further weight to short duration jobs. Thus, as a later table shows, over 70 % of the survey population had been in the job they left for less than one year.

Another feature of the job separations under study is that they occurred mainly in 1970 and 1971. This also follows from the

requirement that the job-leaver experienced unemployment in 1971.

These limitations are stressed because there is, naturally, a greater interest in the job-leavers whose jobs had some duration. For example, what is the incidence of lay offs and plant shutdowns as they affect persons with 5 or 10 or 20 years on the job? Data from the present survey are unsuitable for an assessment of this kind because part of this population would be missed. Those who found other jobs with no interval of unemployment or who left the labour force would be missed altogether; others, who worked in another job before becoming unemployed, would show up in the survey as short duration job-holders. The positive contribution of the survey lies in relating the recent unemployment experience of 1.7 million Canadians to the terms of separation from the "last job" they held.

Reasons for Job Separation

All responses were coded into the basic list of 12 reasons plus one residual category for "other" used in the questionnaire.(2) It will be borne in mind that information of this kind is impossible to obtain or to categorize with perfect accuracy. The respondent may choose not to reveal his true reason or, if the decision was made by the employer, he may simply lack the knowledge of events surrounding termination which would permit him to report the company's reason. Particular difficulty is experienced when two reasons are very closely related. For example, the respondent who clearly perceived that his job ended due to automation could have stated this reason, but another respondent in precisely the same situation may have simply replied "laid off" or "discharged". The category "discharged" was intended to cover the employee dismissed due to unsatisfactory performance but it is entirely possible that job-leavers of this type have also used the "laid off" category.

A rough grouping has been employed to separate "work-related" reasons from personal circumstances such as going back to school, poor health or a return to the housekeeping sector (see Table 1). Within these broad categories hard and fast lines are difficult to draw and the finer distinctions must be treated with some caution. However, if the limitations of the data are kept firmly in mind certain broad patterns emerge.

(2) For a list of the questions asked and a fuller explanation of the reasons for job separation see Appendix.

* Manpower Research and Development Section, Labour Division.

(1) From special questions attached to the Labour Force Survey in January 1972 (see Appendix). "Last job" refers to the job held before becoming unemployed.

TABLE 1. Reasons for Job Separation for Persons Experiencing Some Unemployment in 1971 by Sex

Reason for job separation	Male		Female		Total	
	Number	%	Number	%	Number	%
	'000		'000		'000	
Work related reasons:						
Seasonal or temporary job ended	302	26.5	101	17.0	403	23.2
Laid off	283	24.8	79	13.3	362	20.9
Job eliminated(1)	87	7.6	42	7.1	129	7.4
Job unsatisfactory (bad hours, poor pay, etc.)	150	13.2	87	14.6	237	13.7
Discharged	27(2)	2.4	12(2)	2.0	40	2.3
Personal reasons:						
Went back to school	133	11.7	63	10.6	196	11.3
Person moved	27(2)	2.4	58	9.7	85	4.9
Health (illness, injury, etc.)	59	5.2	57	9.6	116	6.7
Age	13(2)	1.1	--	--	15(2)	0.9
Could not arrange child care, etc.	--	--	12(2)	2.0	12(2)	0.7
Preferred to stay home	--	--	36	6.1	40	2.3
Other	54	4.7	45	7.6	99	5.7
Total	1,139	100.0	595	100.0	1,734	100.0

Note: Table excludes 7,000 who did not specify a reason for job separation.

(1) Combines two categories: (1) business shut down or moved and (2) job eliminated because of new management, automation, etc.

(2) Estimates based on smaller samples; therefore should be used with caution because of high sampling variability.

Table 1 offers clear evidence that for persons who experienced some unemployment during 1971 work-related reasons greatly outweighed the personal. The former accounts for 68 % of all respondents whereas only 27 % gave personal reasons and almost half of these were students returning to school. Excluding the students the number of men giving personal reasons was extremely small. Women were more likely to leave jobs due to a family move or health reasons (approximately 10 % in each category). A very small proportion, 2 %, cited inability to make child care arrangements and 6 % cited a preference for staying home as their reason for job separation.

Most work-related reasons reflected jobs ending - either permanently or temporarily - on the initiative of the employer. The first three categories in Table 1 are of this type: "seasonal or temporary job ended"; "laid off"; and "job eliminated" due to such reasons as automation or business shutdown. Together they accounted for 51.5 % of all respondents (58.9 % of male respondents). Another 13.7 % left jobs citing poor pay or working conditions.

Short-duration jobs - the first category - appear to be a major source of unemployment, a total of 400,000 persons reporting these. The total may be slightly exaggerated because, as a later table shows, there were some respondents in this category who also reported tenure in the last job of a year or more (Table 6). The extent of the reporting error is unknown (perhaps the intended meaning was a broken employment experience with the same employer) but in any event the numbers involved (33,000) are not large enough to affect the total of 400,000 to an appreciable degree. It is not possible to separate the seasonal from other temporary workers but it would be reasonable to infer that they are a large component element.

The next two categories ("laid off" and "job eliminated") are the ones most closely related to economic conditions and are best dealt with together in view of the probable overlapping in the choices made by respondents. Together the two categories accounted for 491,000 persons experiencing unemployment in 1971 of whom 370,000 were male. A finer

breakdown suggests that relatively small numbers (129,000) were involved in final separations arising through plant shutdowns, etc., but of course some part of the larger "laid off" category may also have involved permanent separation.

With some re-arrangement of the categories Table 1 may also be used to obtain a rough indication of "voluntary" as opposed to "involuntary" separations. The distinction presents the usual difficulties. Separations due to illness, for example, are seldom voluntary in the sense that they represent the wish of the individual and some of them may be imposed by the employer. Nevertheless, like other personal reasons, they are conventionally treated as "voluntary". With these reservations in mind, the numbers leaving for personal reasons are added to those who found the job unsatisfactory to yield a total of "voluntary" separations which is about 38 % of the total. The percentage for males is somewhat lower and that of females is higher.

To what extent do these overall patterns reflect the dominant numbers of youthful job-leavers? Table 2 (Section A) provides a distribution by age which shows that, for most

categories, the percentage recorded by the 14-24 year age group is very close to the overall average in Table 1. The youth group is largely responsible for the entry "went back to school" and has also lowered the average for health and age reasons.

Table 2 (Section B) excludes students returning to school and its distributions should be more representative of persons with a firmer attachment to the labour market. Some interesting differences emerge. For example, in the category "temporary job ended" the age group 25-44 years remains close to the overall average but both the youth group and the group 45 years and over record markedly higher percentages. Loss of job due to lay off showed little variation by age but when this category is combined with "job eliminated" the older workers are more heavily represented. The 28.7 % in these two categories for the youth group compares with 34.1 % and 33.9 % in the next two age groups. The opposite tendency applied in the case of persons leaving an unsatisfactory job; 19.0 % of the youth group reported this reason while for workers 45 and over the percentage had dropped to 9.3 %.

TABLE 2. Reasons for Job Separation for Persons Experiencing Some Unemployment in 1971 by Age

Reason for job separation	A. Including students						B. Excluding students(3)		
	14-24 years		25-44 years		45+ years		14-24 years	25-44 years	45+ years
	Number	%	Number	%	Number	%	years	years	years
	'000		'000		'000		%		
Work related reasons:									
Seasonal or temporary job ended	172	21.6	135	22.0	95	29.1	27.7	22.7	29.3
Laid off	143	18.0	147	23.9	72	22.1	23.1	24.7	22.2
Job eliminated(1)	35	4.4	56	9.1	38	11.7	5.6	9.4	11.7
Job unsatisfactory (bad hours, poor pay, etc.)	118	14.8	90	14.7	30	9.2	19.0	15.1	9.3
Discharged	18	2.3	15(2)	2.4	--	--	2.9	2.5	--
Personal reasons:									
Went back to school	175	22.0	19(2)	3.1	--	--	...	...	...
Person moved	39	4.9	36	5.9	--	--	6.3	6.1	--
Health (illness, injury, etc.) or age	36	4.5	43	7.0	51	15.6	5.8	7.2	15.7
Could not arrange child care, etc., or preferred to stay at home	14(2)	1.8	31	5.0	--	--	2.3	5.2	--
Other	45	5.7	42	6.8	12(2)	3.7	7.3	7.1	3.7
Total	795	100.0	614	100.0	326	100.0	100.0	100.0	100.0

Note: Table excludes 7,000 who did not specify a reason for job separation.

(1) See footnote 1 on Table 1.

(2) See footnote 2 on Table 1.

(3) Total excludes all persons who reported "went back to school" as reason for job separation.

... Figures not appropriate or not applicable.

The most striking feature of the regional distribution (Table 3) is the 33 % in the Atlantic Region reporting a seasonal or temporary job ending, the national average being only 23 % and in Ontario less than 20 %. While this particular group is not confined to seasonal workers, there is at least a

strong suggestion that a greater dependence on industries which offer only part-year employment is an important reason for higher unemployment rates in the Atlantic Region. The 64,000 persons in this group represent just under 10 % of the annual average labour force in the Atlantic Region in 1971.

TABLE 3. Reasons for Job Separation for Persons Experiencing Some Unemployment in 1971 by Region

Reason for job separation	Region									
	Atlantic		Quebec		Ontario		Prairies		British Columbia	
	Number	%	Number	%	Number	%	Number	%	Number	%
	'000		'000		'000		'000		'000	
Work related reasons:										
Seasonal or temporary job ended	64	33.0	124	24.2	107	19.6	62	23.5	46	21.0
Laid off	42	21.6	107	20.9	118	21.7	49	18.6	47	21.5
Job eliminated(1)	--	--	51	9.9	44	8.1	14(2)	5.3	12(2)	5.5
Job unsatisfactory (bad hours, poor pay, etc.)	20	10.3	72	14.0	75	13.8	38	14.4	33	15.1
Discharged	--	--	19(2)	3.7	--	--	--	--	--	--
Personal reasons:										
Went back to school	24	12.4	50	9.7	63	11.6	38	14.4	20(2)	9.1
Person moved	--	--	--	--	32	5.9	16(2)	6.1	18(2)	8.2
Health (illness, injury, etc.) or age	12(2)	6.2	44	8.6	44	8.1	18(2)	6.8	14(2)	6.4
Could not arrange child care or preferred to stay home	--	--	--	--	18(2)	3.3	--	--	--	--
Other	--	--	23(2)	4.5	35	6.4	16(2)	6.1	18(2)	8.2
Total	194	100.0	513	100.0	545	100.0	264	100.0	219	100.0

Note: Table excludes 7,000 who did not specify a reason for job separation.

(1) See footnote 1 on Table 1.

(2) See footnote 2 on Table 1.

The "laid offs" tend to a uniform pattern across the country but the "plant shutdown" and "job eliminated" have had their greatest impact in Ontario and Quebec.

Job Separations and Previous Work History

As noted, most of the job separations reported occurred in 1971. Of the 1.7 mil-

lion persons who experienced unemployment in 1971 (excluding the never worked) 1.4 million (80 %) had been employed in that year (Table 4). However, a substantial minority (219,000) reported last job in 1970 and just under 100,000 placed their last job in the years 1965-69. The latter category included as many men as women. Persons whose last job was even more distant, predominantly female, constituted a very small group.

TABLE 4. When Last Worked for Persons Experiencing Some Unemployment in 1971 by Sex

When last worked(1)	Male		Female		Total	
	Number	%	Number	%	Number	%
	'000		'000		'000	
In 1971	955	84.1	435	73.4	1,390	80.4
In 1970	127	11.2	92	15.5	219	12.7
1965-69	48	4.2	45	7.6	93	5.4
Before 1965	--	--	21(2)	3.5	27(2)	1.6
Total	1,136	100.0	593	100.0	1,729	100.0

Note: Table excludes 12,000 who did not specify when they last worked.

(1) Excludes never worked.

(2) See footnote 2 on Table 1.

The main interest in knowing when the last job was held stems from the assumption that persons who have not worked for some time are likely to differ from those with a more or less continuous association with employment. If, as seems likely, their reasons for job separation show a different pattern one would like to distinguish the group without recent job experience for separate examination. But, unfortunately, the

data set limits; the numbers with "last job" before 1970 are too small to permit a breakdown by reasons for leaving. As a partial solution all persons reporting last job previous to 1971 have been combined. This submerges the group with a more prolonged absence from employment but the data do reveal some differences between those who worked in 1971 and those who did not have employment (Table 5).

TABLE 5. Reasons for Job Separation for Persons Experiencing Some Unemployment in 1971 by When Last Worked

Reason for job separation	When last worked(1)					
	In 1971		Before 1971		Total	
	Number	%	Number	%	Number	%
	'000		'000		'000	
Work related reasons:						
Seasonal or temporary job ended	356	25.7	42	12.5	399	23.2
Laid off	310	22.4	49	14.5	358	20.8
Job eliminated(2)	91	6.6	37	11.0	128	7.4
Job unsatisfactory (bad hours, poor pay, etc.)	205	14.8	32	9.5	237	13.8
Discharged	33	2.4	--	--	39	2.3
Personal reasons:						
Went back to school	154	11.1	40	11.9	194	11.3
Person moved	60	4.3	25(3)	7.4	85	4.9
Health (illness, injury, etc.) or age ..	80	5.8	50	14.8	130	7.5
Could not arrange child care, etc. or preferred to stay home	22	1.6	30	8.9	52	3.0
Other	76	5.5	23(3)	6.8	99	5.7
Total	1,387	100.0	337	100.0	1,723	100.0

Note: Table excludes 19,000 who did not specify a reason for job separation or when they last worked.

(1) Excludes never worked.

(2) See footnote 1 on Table 1.

(3) See footnote 2 on Table 1.

Persons who left their last job previous to 1971 were much more likely to have left for personal reasons. Health, staying home, and moving are all more important, together accounting for 31 % of the total as compared to approximately 12 % for those leaving jobs in 1971. The decreased importance of laid off and ending of a seasonal job is not unexpected, the lapse of time having permitted some of a larger number in these categories to be taken back on staff or to have found new jobs. On the other hand, the percentage that reported job eliminated or plant shutdown is higher for those who last worked before 1971. It would appear that the lapse of time has been less useful to this group perhaps because they are older, on the average, or used to steady work and less able or willing to take temporary jobs. The number of persons (37,000) is relatively small, yet the fact that these jobs were lost at least a year before the survey shows that some plant

shutdowns and reorganizations have serious consequences for displaced workers. It is also worth noting the sum of the first three categories under the heading "last worked before 1971" - a total of 120,000 persons who had not found work by the date of the survey, January 1972.

Table 6 reports on the duration of the last job held with the preponderance of short duration jobs its most noteworthy feature. More than half the respondents fell in the category "under six months" and almost three quarters had worked no longer than a year. This distribution is partly explained by the students and other persons who reported temporary jobs but, since these two groups accounted for only 34 % of all job separations in Table 1, it is evident that some of the reporting of other reasons referred to jobs that were held rather briefly.

TABLE 6. Duration of Employment in Last Job for Persons Experiencing Some Unemployment in 1971 by Sex and Age

Duration of last job	Total	Sex		Age	
		Male	Female	14-24 years	25 + years
		%			
Under 6 months	53.8	55.4	50.8	69.3	40.6
6 months-1 year	19.1	19.4	18.7	17.0	21.0
1 year-2 years	10.2	9.1	12.3	8.4	11.8
2 years-5 years	9.0	7.7	11.4	4.8	12.6
5 years-10 years	3.9	3.5	4.5(1)	--	6.7
Over 10 years	4.0	4.9	2.4(1)	--	7.4
Total	100.0	100.0	100.0	100.0	100.0
Total number ('000)	1,735	1,140	595	795	940

Note: Table excludes 7,000 who did not specify either duration of last job, sex or age.
(1) See footnote 2 on Table 1.

There is also the fact that the question was phrased in terms of "last" job. As a result, a person whose "last" job was seasonal or temporary would be recorded as such even if there was a 20-year history in a previous job. To some unknown extent, therefore, the data are biased in favour of short duration jobs.

For persons aged 25 years and over a somewhat higher percentage reported last jobs of longer duration (12 % for two to five years and 14 % for five years and more). Nevertheless, it is a relatively small group - 70,000 - reporting tenure in last job of 10

or more years. Interestingly, no great difference emerges between male and female patterns of tenure.

To relate duration of last job and reasons for leaving it is necessary to group all tenure categories of five years or more (Table 7). The main differences in the pattern of the longer duration jobholders lie in the higher percentage in the health and age and in the job eliminated, business shutdown categories. The latter, accounting for a mere 5 % of the short duration job-leavers, rose to 19 % for those who held their last job for five years or more.

TABLE 7. Reasons for Job Separation for Persons Experiencing Some Unemployment in 1971
by Duration of Employment in Last Job

Reason for job separation	Duration of employment in last job			Total
	1 year and under	1 year - 5 years	Over 5 years	
Work related reasons:				
Seasonal or temporary job ended	29.1	6.9(2)	--	23.2
Laid off	20.9	20.5	22.6	20.9
Job eliminated(1)	4.8	12.5	19.1(2)	7.4
Job unsatisfactory (bad hours, poor pay, etc.)	12.9	18.1	10.1(2)	13.7
Discharged	2.0(2)	--	--	2.3
Personal reasons:				
Went back to school	14.6	--	--	11.3
Person moved	3.3	10.6	--	4.9
Health (illness, injury, etc.) or age	5.6	10.4	18.6(2)	7.5
Could not arrange child care, etc. or preferred to stay home	2.3	5.4(2)	--	3.0
Other	4.6	9.7	--	5.7
Total	100.0	100.0	100.0	100.0
Total number ('000)	1,260	332	137	1,729

Note: Table excludes 7,000 who did not specify a reason for job separation

(1) See footnote 1 on Table 1.

(2) See footnote 2 on Table 1.

APPENDIX

The January 1972 supplementary questions were as follows:

A. Was this person without work and looking for work at anytime in 1971?

No Yes
END

B. Other than a present job, when did this person last work?

In 1971 In 1970 1965-69
Before 1965 Never worked END

C. How long did this person work at that job?

Less than 6 months 1 to 2 years
6 months to 1 year
2 to 5 years 5 to 10 years
More than 10 years

D. Why did this person leave that job?
MARK ONE REASON ONLY

- a. ---- Job eliminated because of new management, automation, elimination of products, etc.
- b. ---- Seasonal or temporary job ended.
- c. ---- Because of lay off.
- d. ---- Business shut down or moved.
- e. ---- Job unsatisfactory (bad hours, poor pay, etc.).
- f. ---- This person moved.
- g. ---- Health (illness, injury, etc.).
- h. ---- Age.

i. ---- Could not arrange for child care, etc.

j. ---- Preferred to stay home.

k. ---- Went back to school.

l. ---- Discharged.

m. ---- Other. Specify in 28

Explanation of categories as given in the enumerator's manual:

. Job eliminated because of new management, automation, elimination of products, etc.

This applies whenever the loss of the job was caused by some change in the company for whom the person worked, but where the business continued to operate after the person lost his or her job.

. Seasonal or temporary job ended.

This applies to those jobs where continuous employment for a long period of time is not possible - e.g. jobs such as trapping, fishing, and even some types of construction are seasonal.

Some jobs are temporary by their nature such as extra help employed by the Post Office around Christmas, canning operations while the crop is in season, or construction jobs when the project is completed.

. Because of lay off.

This applies where the person lost his job either permanently or temporarily, because the firm of business for whom he worked reduced its production (but did not close down) and required fewer workers.

. Business shut down or moved.

Example - Because of the rerouting of a highway a service station was forced to close down. The manager and his helper were left without employment

. Job unsatisfactory (bad hours, poor pay, etc.)

This applies where the person left the job because he considered the working conditions to be too poor to continue working. This is a voluntary loss of a job, that is, the person could have continued to work. (Ref. example 3 in question B.)

f. This person moved.

E.g. Mrs. Bell worked as sales clerk in a city department store. Her husband is a member of the Canadian Armed Forces and was transferred to an army camp in another province. The family moved and Mrs. Bell had to resign her position.

g. Health (illness, injury, etc.)

This refers to any health problem of the person in question which forced him to leave his last job.

h. Age.

This refers to either:

(a) The person's age made him physically or mentally incapable of continuing to work at his last job (e.g. ref. example 1 in question B);

(b) The person reached the compulsory company retirement age in his last job.

i. Could not arrange for child care, etc.

This refers to those situations where the person would have preferred to continue to work but had to leave last job in order to care for children since no satisfactory child care arrangements were available.

This also refers to situations where care arrangements could not be made for other members of the household such as sick or invalid parents, spouse, etc.

j. Preferred to stay home.

(Self-explanatory)

k. Went back to school.

(Self-explanatory)

l. Discharged.

This refers only to those cases where the person lost his job because he failed to perform his duties adequately. That is, he was fired.

m. Other (specify in Item 28).

If the reason given for leaving the last job does not fit into any of the mentioned categories.

THE TIME-LOST INDEX: A TECHNICAL NOTE

Ed Wong*

Statistical measures of labour under-utilization are difficult to devise. In addition to the unemployed (without work and seeking) the concept of underutilization covers persons who, though working, are not utilizing their full potential. According to the I.L.O. definition visible underemployment refers to "persons involuntarily working part-time or for shorter than normal periods of work".(1) This study attempts a partial measure of what is sometimes called "visible" underemployment.

If involuntary part-time employment could be identified it would be possible to calculate the hours "lost" to the economy at any particular point in time. Time lost to the economy expressed as a percentage ratio of total hours worked plus total hours lost generates a "time-lost index"(2) which serves as a composite indicator reflecting unemployment as well as a portion of underemployment. Such an index is published monthly by the U.S. Bureau of Labor Statistics.(3) Similar, although more limited, time-lost information has been compiled in two Canadian studies(4) but the time-lost index does not form part of the regularly published statistics.

Labour Time Lost: Measurement Techniques and Results

The calculation of a time-lost index

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- (1) See International Labour Organisation, "Measurement of Underemployment: Concepts and Methods", Eleventh International Conference of Labour Statisticians, International Labour Office (Geneva, Switzerland: 1966), p. 16.
- (2) Gertrude Bancroft, "Some Alternate Indexes of Employment and Unemployment", Monthly Labor Review, LXXXV, No. 2, U.S. Department of Labor (February 1962), pp. 167-74.
- (3) See any recent issue of Employment and Earnings, U.S. Department of Labor, Chart 2 and Table A-33.
- (4) Sylvia Ostry, "Unemployment in Canada", 1961 Census Monograph Program, Statistics Canada (Ottawa: Information Canada, 1968), Chapt. 3.
Nand K. Tandan, "Underutilization of Manpower in Canada", Special Labour Force Studies, Series A, No. 8, Statistics Canada (Catalogue 71-513 Occasional) (Ottawa: Information Canada, 1969), pp. 9-10.

involves the imputation of hours that were worked, lost and "could have been worked" through several categories of employed and unemployed. The exact method of derivation of the index(5) is

$$\frac{\text{man-hours lost}}{\text{man-hours worked} + \text{man-hours lost}} \times 100 \%$$

where the man-hours lost rate is derived from the conversion of the number of workers and hours dimensions

$$\text{or } \frac{\sum U_j}{\sum E_i + \sum U_j} \times 100 \%$$

where U = man-hours not worked
E = man-hours worked
i = 1, 2, ..., 5 are the categories of employed (see Table 2)
j = 6, 7, ..., 10 are the categories of underutilization (see Table 2)

The Labour Force Survey (the source of all data in this article) obtains information on actual hours worked in the reference week and, for those who worked less than 35 hours, whether that person usually works full-time (defined as 35 hours or more), the reason for working part-time, and whether full-time work would be preferred. Reasons for working part-time are classified into two main categories - "economic" and "non-economic". A summary of the information available is presented in Table 1.

A main problem in the construction of the time-lost index lies in the assignment of certain types of absences and short-time work. Clearly, the hours foregone because firms cut back production or because a person cannot get a full-time job (i.e., due to economic reasons) belong in the "man-hours lost" component. Equally clear, the time workers spend at their jobs belongs in the "man-hours worked" component. But differences of interpretation are possible in the case of persons who had jobs but were not at work due to bad weather, illness, public holidays and other "non-economic" reasons. Should they be considered to have lost or provided time?

- (5) Note the symmetry with the unemployment rate, where

$$\frac{U}{E + U} \times 100 \%$$

$$\frac{\text{unemployed persons}}{\text{employed persons} + \text{unemployed persons}} \times 100 \%$$

TABLE 1. "Economic" and "Non-economic" Part-time Workers and Job Seekers by Usual Hours Worked

Employed	Working part-time due to:	
	"Economic reasons"	"Non-economic reasons"
Usually full-time		
• worked part-week	short-time and turn-over	illness, bad weather, vacation, industrial dispute, miscellaneous
• not at work	unemployed	"
Usually part-time		
• prefer to work full-time	no (more) work	household responsibility, age or physical disability, going to school, other
• not at work	unemployed	illness, bad weather, vacation, industrial dispute, miscellaneous

In the construction of the U.S. time-lost index persons with jobs who were absent the full week for non-economic reasons are treated as having contributed hours. The reasoning is that they had jobs (unlike persons who worked less than the full week due to inability to find work) and, in many cases, were paid in their absence. Thus, hours are imputed to this group which appear in the calculation of "hours worked". The fact that such persons are also counted as "employed" in the routine classification of labour force status means a "man-hours worked" concept which is symmetrical with the calculation of the unemployment rate.

Persons with jobs who were absent part-week for non-economic reasons have not been included in "man-hours worked" although, like the full-week absentees, they are counted as "employed". This appears to be an element of inconsistency in the U.S. time-lost index. On the other hand, the position might be argued that neither of these groups is properly included in the calculation of hours worked. The absentees have not, in fact, provided hours of work. Many of them, in addition, were not available for work and, while a certain amount of work absence takes place without further repercussions, in many cases replacement workers are hired (summer students, office overload, etc.). Such replacements might be a substantial fraction of absences due to vacations, though less so for other causes, and to include both the substitutes and the absentees in the estimation of hours worked involves some double counting. For

this reason and to avoid the logical inconsistency of counting hours as "worked" when they were not, the author inclines to the view that absentees for non-economic reasons should be excluded from the time-lost index, their hours being treated as neither worked nor lost.

These several possibilities have been used to produce three variants of a time-lost index. Details of the calculations are set forth in Table 2 which should be used as a reference in what follows.

Variant I — This is essentially the Bancroft method(6) which imputes hours to persons absent from jobs all week for non-economic reasons (items 2 and 3 in Table 2), including them in "man-hours worked". Thus,

$$\text{Variant I} = \frac{\sum U_j}{\sum E_i + \sum U_j} \times 100 \%$$

$$= \frac{(6+...+10)}{(1+2+3) + (6+...+10)} \times 100 \%$$

Variant II — As above, with the addition of persons with jobs who worked only part of the reference week for non-economic reasons (items 4 and 5 in Table 2). Thus,

$$\text{Variant II} = \frac{\sum U_j}{\sum E_i + \sum U_j} \times 100 \%$$

$$= \frac{(6+...+10)}{(1+2+3+4+5) + (6+...+10)} \times 100 \%$$

(6) Bancroft, op. cit., p. 171.

TABLE 2. Worksheet for Estimating Per Cent of Labour Force Time Lost Using Alternative Hours Standard and Approaches, Seasonally Adjusted, December 1971

(Note: Seasonal adjustment done by summation based on a six-year period)

Details of calculation	Variable standard 39.3	Constant standard		
		35.0	37.5	40.0
man-hours in thousands				
1. Actual man-hours worked	305,227	305,227	305,227	305,227
2. Man-hours imputed to persons with a job, usually full-time, but were not at work for "non-economic" reasons (454,000 persons x standard)	17,842	15,890	17,025	18,160
3. Man-hours imputed to persons with a job, usually part-time, but were not at work for "non-economic" reasons (29,000 persons x 20 hours)	580	580	580	580
4. Man-hours imputed to persons with a job, usually full-time, working part-time for "non-economic" reasons (680,000 persons x 20 hours)	13,600	13,600	13,600	13,600
5. Man-hours imputed to persons with a job, usually part-time, but working part- time for "non-economic" reasons (16,000 persons x 20 hours)	320	320	320	320
6. Man-hours imputed to unemployed persons seeking full-time work (493,000 persons x standard)	19,374	17,255	18,487	19,720
7. Man-hours imputed to unemployed persons seeking part-time work (35,000 persons x standard)	700	700	700	700
8. Man-hours imputed to unemployed persons, temporarily laid off (31,000 x stan- dard)	1,218	1,085	1,162	1,240
9. Man-hours imputed to persons with a job, usually full-time, working part-time for "economic reasons"	1,440	1,440	1,440	1,440
10. Man-hours imputed to persons with a job, usually part-time, working part-time for "economic reasons"	1,640	1,640	1,640	1,640
11. Man-hours worked:				
Variant I: (1+2+3)	323,649	321,697	322,832	323,967
Variant II: (1+2+3+4+5)	337,569	335,617	336,752	337,887
Variant III: (1)	305,227	305,227	305,227	305,227
12. Man-hours lost:				
(6+7+8+9+10)	24,372	22,120	23,429	24,740
13. Total available time:				
Variant I: (1+2+3+12)	348,021	343,817	346,261	348,707
Variant II: (1+2+3+4+5+12)	361,941	357,737	360,181	362,627
Variant III: (1+12)	329,599	327,347	328,656	329,967
14. Time-lost index:				
Variant I: ([12] ÷ [1+2+3+12])	7.0	6.4	6.8	7.1
Variant II: ([12] ÷ [1+2+3+4+5+12])	6.7	6.2	6.5	6.8
Variant III: ([12] ÷ [1+12])	7.4	6.8	7.1	7.5
15. Unemployment rate	6.3	6.3	6.3	6.3

Variant III - Excludes all persons absent from jobs full-or part-week for non-economic reasons. Thus,

$$\text{Variant III} = \frac{\sum U_j}{\sum E_i + \sum U_j} \times 100 \%$$

$$= \frac{(6+...+10)}{(1) + (6+...+10)} \times 100 \%$$

The assumptions which underlie the hours calculations are as follows:

- (1) Full-time work was given four separate definitions: 35.0 hours, 37.5 hours, 40.0 hours and the average hours worked for a particular month (in our illustrated example of December 1971, the average was 39.3 hours). These may be seen in the four columns of Table 2. None of the definitions are completely satisfactory because each category for which hours are imputed must be assumed to have the same pattern of hours representing full-time work. However, certain simplifying assumptions are necessary to make the calculations manageable;
- (2) Persons usually (or incidentally) working part-time were assumed to have lost (or wanted) 20 hours per man (more). Again, while a more refined proxy might have been calculated from the data an order of magnitude was deemed sufficient for the purpose at hand;
- (3) Unemployed persons were divided into three groups to better approximate their hours lost. The groups consist of: (a) those seeking full-time work; (b) those seeking part-time work; and (c) those on temporary lay off (TLO's). The full-time seekers were assumed to be looking for the same hours as those attributed to full-time workers above (35.0, ...), while those seeking part-time work were assumed to be looking for 20.0 hours of work in every case. The TLO's were assumed to have lost the designated full-time hours (i.e., 35.0,...). This TLO estimate should be viewed as an upper limit since, undoubtedly, there would be some members on part-time schedules.

Variants I and III are presented in Chart 1. Variant II has also been calculated but the results differ so little that visual clarity is better served by omitting it from the chart. (The complete set of results for each variant is presented in the Appendix.) Both time-lost indices in the chart have been seasonally adjusted using

the X-11 variant of the U.S. Census II Program and may be compared with unemployment rates for the same period, 1966-71.

It is at once evident that despite the somewhat higher level of the time-lost indices their movements over time are essentially similar to those of the unemployment rate. The gaps between them have also remained quite stable over the years.

Another way of presenting the same information is to show the per cent of available labour force time which was being utilized each month. In Chart 2 the "employment rate" is simply 100 % minus the unemployment rate; the other indicator is the variable standard Variant I time-lost index subtracted from 100 %.

Is the time-lost index better than the unemployment rate?

For some purposes, the answer seems to be "yes". For one thing, the time-lost index is more comprehensive, encompassing not only the unemployed but also part-time workers who wish but cannot find full-time work. The person working 10 hours and wishing more is simply missing from the "state of the economy" message conveyed by the unemployment rate whereas the time-lost index counts him as underemployed and makes a rough estimate for the extra hours of work he wished to obtain. Another advantage to the time-lost index is the greater precision it gives to the measurement of employment. Expressed in terms of actual man-hours worked total employment takes account of the fact that some employed persons have worked as little as one hour in the reference week while others have worked 40 hours or more. Calculations for producing the unemployment rate, by contrast, count the number of individuals with employment regardless of the number of hours worked.

On the other hand, the time-lost index offers no improvement in the cyclical sensitivity of the unemployment rate. Since it involves additional calculations and is probably more difficult for the public to understand, the time-lost index is seen as supplementary to, not a replacement for, the unemployment rate. As a source of supplementary information its usefulness could be extended by special purpose tabulations: for example, absences due to illness could be separated to yield an index of time lost due to illness.

CHART

PERCENT OF LABOUR TIME-LOST THROUGH UNEMPLOYMENT AND PART-TIME EMPLOYMENT
AND PERCENT OF LABOUR FORCE UNEMPLOYED, SEASONALLY ADJUSTED,
JANUARY 1966-DECEMBER 1971

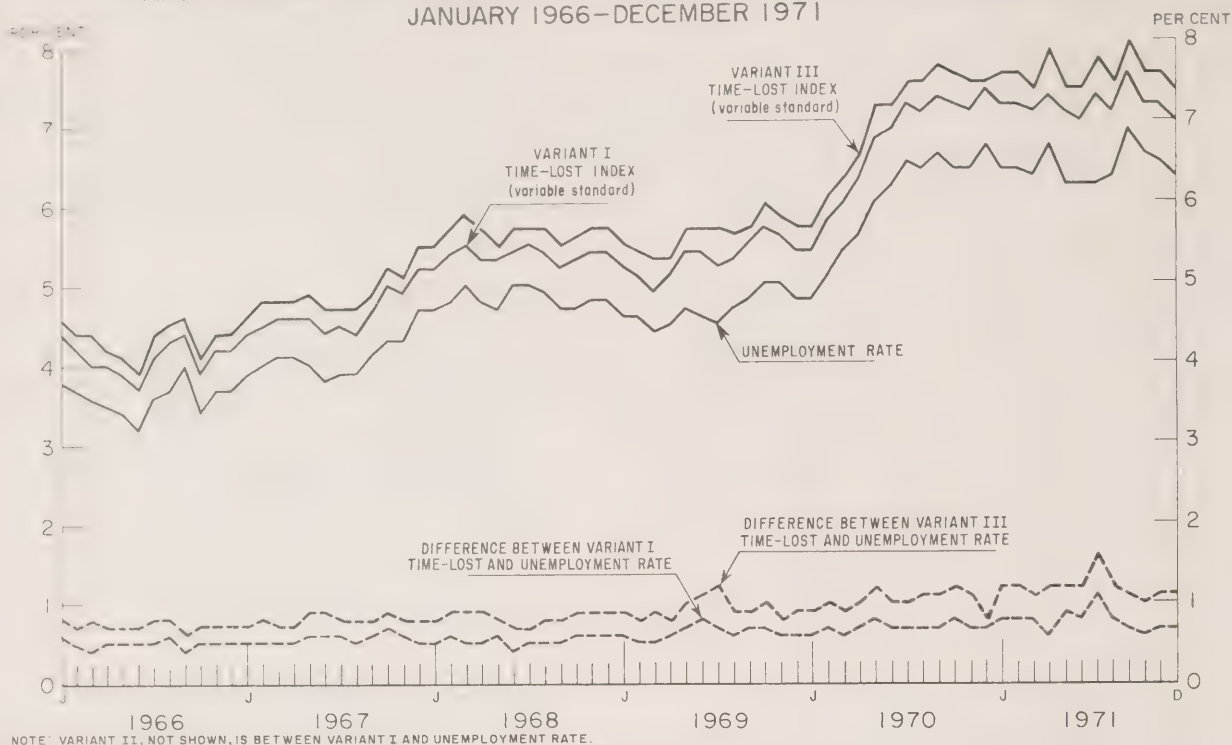
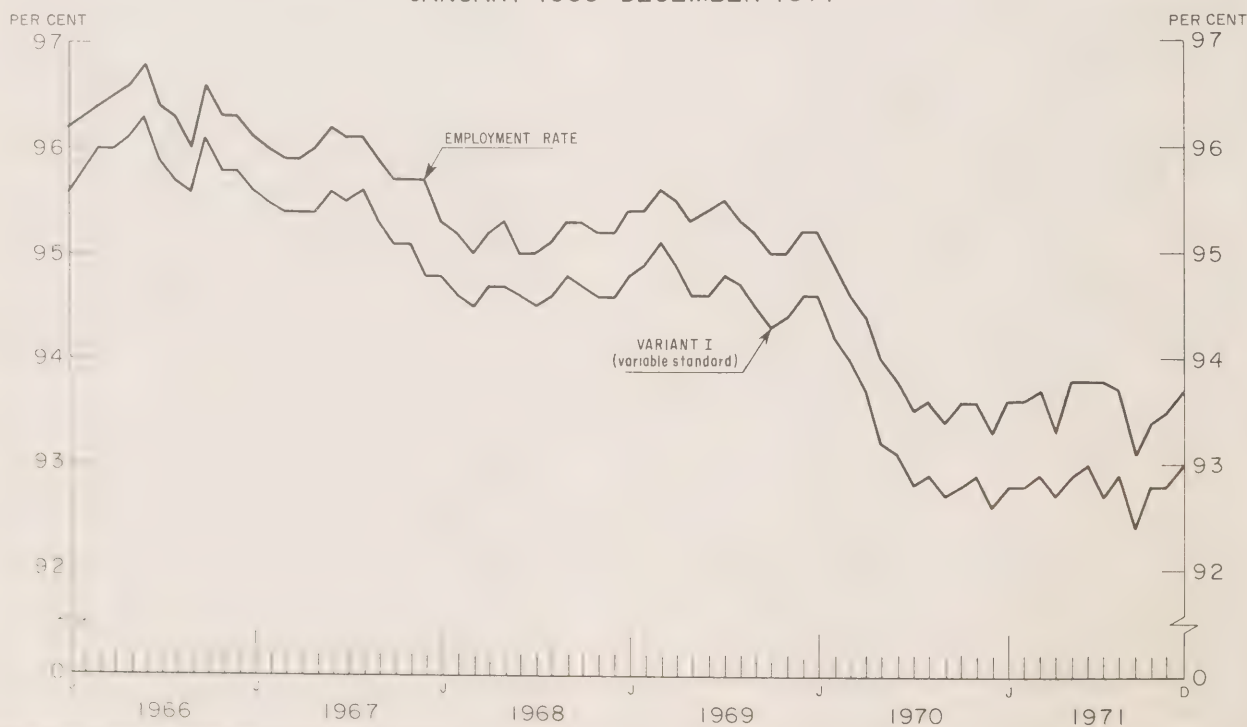


CHART-2

PERCENT OF AVAILABLE LABOUR FORCE TIME UTILIZED, SEASONALLY ADJUSTED,
JANUARY 1966-DECEMBER 1971



APPENDIX

The Data

TABLES: Time-lost Indexes, Alternate Variants and Hour Standards, and Unemployment Rates, Seasonally Adjusted, Canada, Monthly, 1966-71.

TABLE A1. Time-lost Index - Variant I

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
35.0 hours standard:												
1966	3.9	3.7	3.6	3.5	3.4	3.3	3.6	3.8	3.9	3.4	3.8	3.7
1967	3.9	4.0	4.1	4.0	4.1	4.0	4.0	4.0	4.2	4.4	4.2	4.6
1968	4.7	4.8	4.9	4.8	4.6	4.9	5.0	4.9	4.7	4.8	4.9	4.9
1969	4.7	4.6	4.5	4.6	5.1	4.8	4.7	4.8	5.0	5.2	5.0	4.9
1970	4.9	5.3	5.5	5.7	6.5	6.3	6.6	6.5	6.6	6.6	6.5	6.8
1971	6.6	6.6	6.5	6.8	6.3	6.4	6.7	6.5	7.0	6.6	6.6	6.4
37.5 hours standard:												
1966	4.1	3.9	3.7	3.7	3.6	3.4	3.8	4.0	4.1	3.6	3.9	3.9
1967	4.1	4.3	4.3	4.3	4.3	4.2	4.2	4.2	4.4	4.6	4.4	4.9
1968	4.9	5.1	5.2	5.1	4.9	5.1	5.2	5.2	5.0	5.1	5.2	5.2
1969	4.9	4.9	4.7	4.8	5.3	5.1	4.9	5.1	5.2	5.4	5.3	5.2
1970	5.2	5.5	5.8	6.0	6.8	6.6	6.9	6.8	7.0	6.9	6.8	7.1
1971	6.9	6.9	6.8	7.2	6.6	6.8	7.0	6.8	7.3	6.9	7.0	6.8
Variable standard:												
1966	4.4	4.2	4.0	4.0	3.9	3.7	4.1	4.3	4.4	3.9	4.2	4.2
1967	4.4	4.5	4.6	4.6	4.6	4.4	4.5	4.4	4.7	5.0	4.9	5.2
1968	5.2	5.4	5.5	5.3	5.3	5.4	5.5	5.4	5.2	5.3	5.4	5.4
1969	5.2	5.1	4.9	5.1	5.4	5.4	5.2	5.3	5.5	5.7	5.6	5.4
1970	5.4	5.8	6.0	6.3	6.8	6.9	7.2	7.1	7.3	7.2	7.1	7.4
1971	7.2	7.2	7.1	7.3	7.1	7.0	7.3	7.1	7.6	7.3	7.2	7.0
40.0 hours standard:												
1966	4.3	4.1	3.9	3.9	3.8	3.6	4.0	4.2	4.3	3.8	4.1	4.1
1967	4.3	4.5	4.5	4.5	4.5	4.4	4.4	4.4	4.6	4.9	4.7	5.1
1968	5.2	5.3	5.4	5.3	5.1	5.4	5.5	5.4	5.2	5.3	5.4	5.5
1969	5.2	5.1	4.9	5.0	5.6	5.3	5.4	5.3	5.5	5.7	5.6	5.4
1970	5.4	5.8	6.0	6.3	7.1	6.9	7.2	7.1	7.3	7.2	7.2	7.5
1971	7.3	7.2	7.1	7.5	7.0	7.1	7.3	7.2	7.7	7.3	7.3	7.1

TABLE A2. Time-lost Index - Variant II

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
35.0 hours standard:												
1966	3.7	3.6	3.4	3.4	3.4	3.2	3.5	3.7	3.8	3.3	3.6	3.6
1967	3.8	3.9	4.0	4.0	4.0	3.8	3.9	3.8	4.0	4.3	4.2	4.3
1968	4.5	4.7	4.7	4.5	4.6	4.7	4.8	4.7	4.6	4.7	4.8	4.7
1969	4.5	4.9	4.3	4.5	4.5	4.7	4.5	4.7	4.8	5.0	4.9	4.8
1970	4.8	5.1	5.3	5.6	5.8	6.0	6.2	6.2	6.4	6.3	6.3	6.5
1971	6.4	6.3	6.2	6.2	6.3	6.2	6.4	6.3	6.7	6.3	6.4	6.2
37.5 hours standard:												
1966	3.9	3.7	3.6	3.6	3.6	3.3	3.7	3.8	4.0	3.5	3.8	3.8
1967	4.0	4.1	4.2	4.2	4.2	4.0	4.1	4.0	4.2	4.5	4.4	4.7
1968	4.5	4.9	5.0	4.8	4.8	4.9	5.1	5.0	4.8	4.9	5.0	5.0
1969	4.8	4.7	4.5	4.7	4.8	4.9	4.8	4.9	5.0	5.3	5.1	5.0
1970	5.0	5.4	5.6	5.9	6.2	6.4	6.5	6.6	6.7	6.7	6.6	6.9
1971	6.7	6.6	6.6	6.5	6.6	6.5	6.8	6.6	7.1	6.7	6.7	6.5
Variable standard:												
1966	4.2	4.0	3.9	3.9	3.9	3.6	4.0	4.1	4.3	3.8	4.1	4.0
1967	4.3	4.4	4.4	4.5	4.6	4.3	4.4	4.3	4.5	4.8	4.8	5.0
1968	5.0	5.2	5.5	5.0	5.2	5.2	5.3	5.2	5.0	5.2	5.3	5.2
1969	5.0	5.0	4.8	5.0	4.8	5.1	5.0	5.2	5.3	5.5	5.3	5.3
1970	5.2	5.6	5.8	5.8	6.1	6.6	6.8	6.8	7.0	6.9	6.9	7.1
1971	7.0	6.9	6.8	6.7	7.0	6.8	7.0	6.8	7.3	6.9	6.9	6.7
40.0 hours standard:												
1966	4.1	3.9	3.8	3.8	3.7	3.5	3.9	4.0	4.2	3.7	4.0	4.0
1967	4.2	4.3	4.4	4.4	4.4	4.2	4.3	4.2	4.4	4.7	4.6	5.0
1968	5.0	5.1	5.2	5.0	5.1	5.2	5.3	5.2	5.0	5.2	5.3	5.2
1969	5.0	4.9	4.7	4.9	5.0	5.1	5.0	5.1	5.3	5.5	5.4	5.3
1970	5.2	5.6	5.8	5.8	6.4	6.7	6.8	6.9	7.0	7.2	6.9	7.2
1971	7.0	7.0	6.9	6.8	6.9	6.9	7.1	6.9	7.4	7.0	7.0	6.8

TABLE A3. Time-lost Index — Variant III

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
35.0 hours standard:												
1966	4.0	3.8	3.7	3.6	3.6	3.6	3.8	3.9	3.1	3.0	3.1	3.3
1967	4.1	4.2	4.3	4.2	4.2	4.1	4.2	4.1	3.8	3.6	3.6	3.8
1968	4.9	5.0	5.2	5.1	4.8	5.1	5.2	5.3	2.9	3.8	5.1	5.1
1969	4.9	4.9	4.7	4.8	5.3	5.1	4.3	5.2	5.1	3.3	5.3	5.1
1970	5.2	5.5	5.7	5.9	6.9	6.6	6.9	6.8	6.9	6.9	6.6	7.1
1971	6.9	6.9	6.8	7.2	6.6	6.7	7.1	6.8	7.1	6.9	6.9	6.8
37.5 hours standard:												
1966	4.2	4.0	3.9	3.8	3.7	3.6	4.0	4.2	4.1	3.8	4.1	3.1
1967	4.3	4.4	4.5	4.5	4.5	4.4	4.4	4.3	4.6	3.9	4.3	3.1
1968	5.2	5.3	5.5	5.4	5.1	5.4	5.5	5.4	5.2	5.3	5.4	5.8
1969	5.2	5.1	5.0	5.0	5.6	5.4	5.2	5.3	5.5	5.8	5.6	5.4
1970	5.5	5.8	6.0	6.3	7.2	6.9	7.2	7.2	7.3	7.3	7.2	7.3
1971	7.3	7.2	7.1	7.7	7.0	7.1	7.3	7.2	7.7	7.8	7.8	7.8
Variable standard:												
1966	4.6	4.4	5.4	4.2	4.1	3.9	4.4	4.5	4.6	4.1	4.4	4.4
1967	4.6	4.8	4.8	4.8	4.9	4.7	4.7	4.7	4.9	5.2	5.1	5.5
1968	5.5	5.7	5.9	5.7	5.5	5.7	5.7	5.7	5.5	5.6	5.7	5.7
1969	5.5	5.4	5.3	5.3	5.7	5.7	5.7	5.6	5.7	5.9	5.8	5.7
1970	5.7	6.1	6.3	6.6	7.2	7.2	7.5	7.5	7.7	7.6	7.5	7.5
1971	7.6	7.6	7.4	7.9	7.4	7.4	7.8	7.5	8.0	7.0	7.6	7.5
40.0 hours standard:												
1966	4.4	4.2	4.1	4.0	3.9	3.8	4.2	4.4	4.5	4.0	4.3	4.3
1967	4.5	4.7	4.7	4.7	4.7	4.6	4.7	4.6	4.8	5.1	4.9	5.4
1968	5.5	5.6	5.8	5.7	5.4	5.6	5.8	5.7	5.5	5.6	5.7	5.7
1969	5.5	5.4	5.2	5.3	5.9	5.6	5.4	5.6	5.7	6.0	5.9	5.7
1970	5.7	6.1	6.3	6.6	7.6	7.3	7.6	7.5	7.7	7.6	7.6	7.9
1971	7.6	7.6	7.5	8.1	7.3	7.5	7.9	7.6	8.1	7.3	7.7	7.5

TABLE A4. Unemployment Rates

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1966	3.8	3.7	3.6	3.5	3.4	3.2	3.6	3.7	4.0	3.4	3.7	3.7
1967	3.9	4.0	4.1	4.1	4.0	3.8	3.9	3.9	4.1	4.3	4.3	4.7
1968	4.7	4.8	5.0	4.8	4.7	5.0	5.0	4.9	4.7	4.7	4.8	4.8
1969	4.6	4.6	4.4	4.5	4.7	4.6	4.5	4.7	4.8	5.0	5.0	4.8
1970	4.8	5.1	5.4	5.6	6.0	6.2	6.5	6.4	6.6	6.4	6.4	6.7
1971	6.4	6.4	6.3	6.7	6.2	6.2	6.2	6.3	6.9	6.6	6.5	6.3

Note: All indexes and rates were seasonally adjusted by summation based on a six-year span. The six-year period seasonally adjusted unemployment rates here do not agree completely with the official 19-year span seasonally adjusted rates as published in Statistics Canada's The Labour Force (Catalogue 71-001 Monthly) and Seasonally Adjusted Labour Force Statistics (Catalogue 71-201 Annual). Of two seasonally adjusted time series using the identical program, the one with the longer time span will usually have the more reliable results. Nevertheless, most of the rates between 1966-71 were identical to the official rates.

A COMPARISON OF UNEMPLOYMENT IN SELECTED INDUSTRIAL COUNTRIES

Nand Tandan*

Continuing high rates of unemployment encourage Canadians to look around to see how this country is doing in comparison with others. The first comparison is obviously with our southern neighbour and the generally reassuring observation is that the unemployment picture there does not look much brighter. Then we look overseas — and the comparisons are less comforting. The published unemployment rates in most industrial nations are well below our own.

The reaction to this comparison can best be described in the words of the U.S. President's Committee ten years ago, namely, "Are they real?". This note pursues the question. Do these low rates in other countries reflect less unemployment — or simply a different way of defining or measuring it? Investigation supplies scant reassurance on this point, which leads to an examination of other reasons for lower unemployment rates abroad. Since the focus is on popular explanations and the examination is essentially confined to data series which permit comparisons among countries, the analysis does not lead to any firm conclusions. However, it may help to clear away certain misconceptions and to stimulate further research.

The countries selected for the comparison are all members of the OECD organization: five in Europe, the United States and Japan. All would be characterized as "industrial" nations, some more highly industrialized than

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Canada, others less so. In addition, with the single exception of Japan, all share a European heritage which confers a similarity in cultural and ethical values underlying the several economies.

The Comparison

Table 1 conveys the standings of seven countries(1) in terms of unemployment rates in 1971 and in two earlier years. The rates themselves are not shown because they have not been adjusted for differences in concepts and measurement techniques but the historical background provides a good introduction. Notice that not much change occurred in the rankings over the decade of the sixties, with the two North American countries at the bottom of the list in both 1961 and 1971. But a decade earlier, the standings had been quite different. Through the fifties West Germany moved from near the bottom to the top position; Sweden and Italy also improved their standing while that of Canada, the United States and Great Britain declined. Japan has remained at or near the top throughout.

(1) Official French statistics simply give the number of unemployed persons and do not provide a measure of the rate of unemployment. The U.S. Bureau of Labor Statistics has estimated the rate for the sixties, but we could not get any rate for France for 1951 and it is, therefore, excluded from this table.

TABLE 1. Selected Industrialized Countries Ranked in Ascending Order of Unemployment Rates (Unadjusted) in 1951, 1961 and 1971

Rank	1951	1961	1971
1	Japan	West Germany	West Germany
2	U.K.	Japan	Japan
3	Sweden	Sweden	Sweden
4	Canada	U.K.	Italy
5	U.S.A.	Italy	U.K.
6	West Germany	U.S.A.	U.S.A.
7	Italy(1)	Canada	Canada

(1) Based on 1953 rankings.

Source: Bulletin of Labour Statistics and supplement of International Labour Review, International Labour Office, Geneva, Switzerland.

How comparable are the statistics? Because different countries use different methods to measure unemployment it is commonly supposed that differences in concepts, definitions and measurement techniques are largely responsible for the differences in the results. But this popular view is misleading. In fact, while many countries in this comparison make some use of administrative statistics (employment exchanges, and the like) it is only the U.K. that continues to rely on administrative sources exclusively. With the exception of France (which does not publish an unemployment rate), all other countries in this comparison measure unemployment using sample surveys which are very similar to Canada's labour force survey and the U.S. current population survey. France also conducts a similar survey from time to time from which unemployment rates can be calculated. In all countries the definition of the unemployed tends to be much the

same (in general, "without work and looking for work") although the criteria for determining precise labour force status vary somewhat from one country to another.

For some years now the U.S. Bureau of Labor Statistics has published for a number of countries unemployment rates adjusted to conform with U.S. concepts(2). Obviously, it is not possible to align the statistics with absolute precision but the BLS claims to make adjustment for "all known major definitional differences" and its procedures are believed adequate to bring the statistics to a relatively uniform basis. Table 2 shows that in most countries the changes effected are quite minor.

(2) These figures are published periodically in the Monthly Labor Review, U.S. Department of Labor.

TABLE 2. Published and Adjusted Unemployment Rates in Selected Industrialized Countries, 1971

Country	Published rate	Rate adjusted to the U.S. concepts
Canada	6.4	6.4
France(1)	2.1	2.7
Great Britain(1)	3.5	5.3
Italy	3.1	3.4
Japan	1.2	1.3
Sweden	2.5	2.6
United States	5.9	5.9
West Germany(1)	0.9	0.7

(1) Based on preliminary estimate.

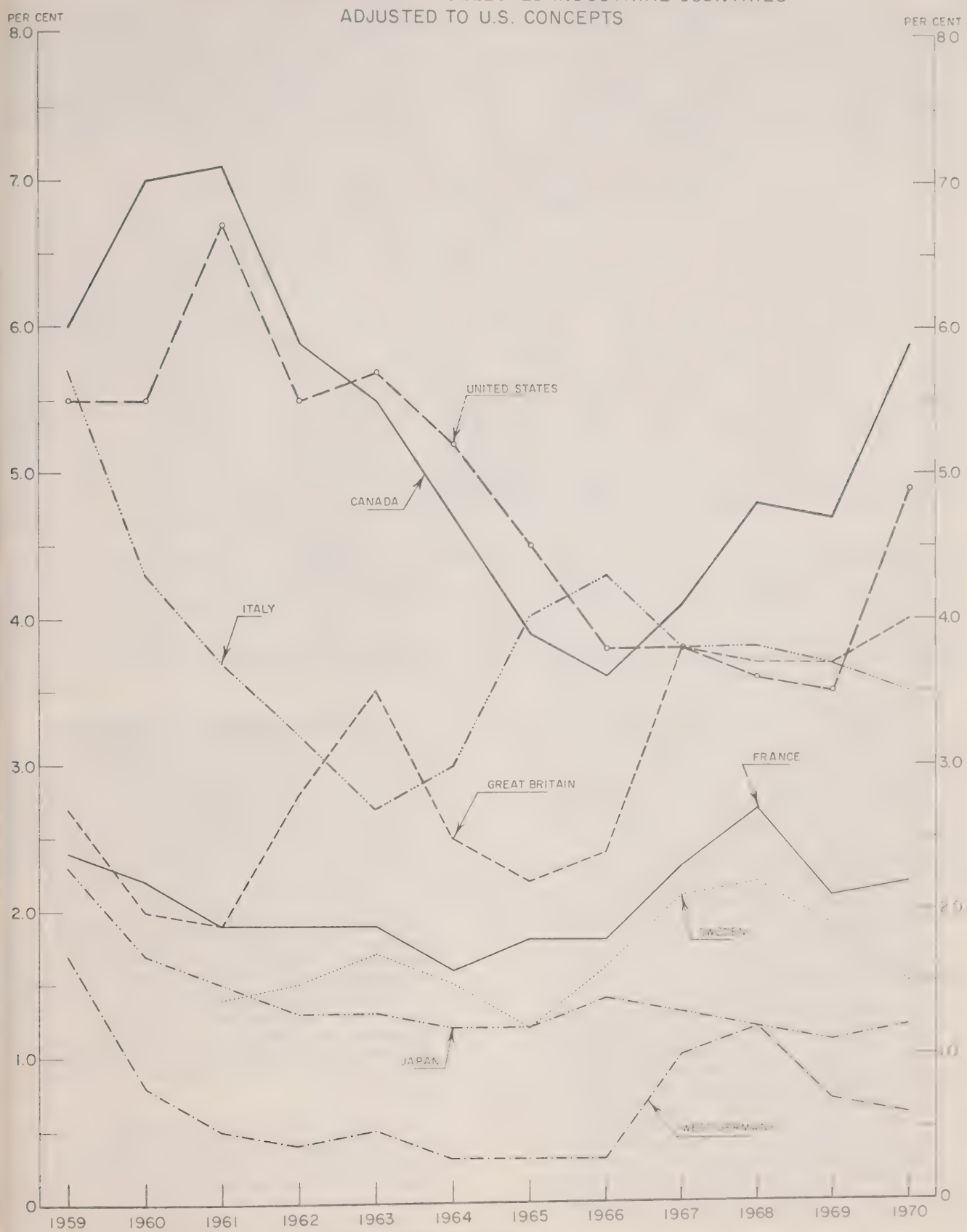
Source: Constance Sorrentino, "Unemployment in Nine Industrialized Countries", Monthly Labour Review, XCV, No. 6, U.S. Department of Labor (June 1972), p. 30.

Using the BLS data, the adjusted unemployment rates in the eight countries are traced in Chart 1, beginning in 1959. Notice that in West Germany the unemployment rate has generally been below 1 %, exceeding that limit in two years only. In Japan, Sweden and France the rate has tended to be below or near 2 %. Intermediate between these rates and the North American lies the mixed experience of the U.K. and Italy. The former, at

the beginning of the period, had low rates similar to France, but unemployment edged upward during the decade and is now reaching the lower limits of the North American experience. Italy reveals the opposite trend. The unemployment rate was at the North American level in 1959, then declined substantially; subsequent increases have brought it very close to the U.K. rate in recent years.

CHART-1

UNEMPLOYMENT RATES IN SELECTED INDUSTRIAL COUNTRIES ADJUSTED TO U.S. CONCEPTS



SOURCE: BASED ON DATA PROVIDED BY THE U.S. BUREAU OF LABOR STATISTICS

A second way of looking at the unemployment experience is by examining the average rate and range of rates of unemployment over the period 1959-70 as shown in Table 3. Thus the mean rate in Canada (5.3 %) was slightly higher than in the United States (4.9 %) and substantially higher than in any of the other countries included in the

comparison. Canada's high and low (7.1 % and 3.6 % respectively) as well as the standard deviation were also the highest with the U.S., once again, close behind. At the other end of the scale the country with the lowest unemployment rate, West Germany, had a mean rate of .7 % reflecting a range of rates between 1.7 % and .3 %.

TABLE 3. Mean, Range and Standard Deviation of Adjusted Unemployment Rates in Selected Industrialized Countries, 1959-70

(as adjusted by the U.S. Bureau of Labor Statistics)

Country	Mean	Highest(1)	Lowest(1)	Standard deviation	Coefficient of variance
Canada	5.3	7.1(1961)	3.6(1966)	1.10	.21
France	2.1	2.7(1968)	1.6(1964)	.30	.14
Great Britain	2.9	4.0(1970)	1.9(1961)	.73	.25
Italy	3.8	5.7(1959)	2.7(1963)	.73	.19
Japan	1.4	2.3(1959)	1.1(1969)	.32	.23
Sweden(2)	1.7	2.2(1968)	1.2(1965)	.30	.18
United States	4.9	6.7(1961)	3.5(1969)	.97	.20
West Germany(3) .....	.7	1.7(1959)	(1964) .3(1965) (1966)	.41	.59

(1) The years of the highest and the lowest unemployment rates are shown in parentheses.

(2) Figures not available for Sweden for 1959 and 1960.

(3) Preliminary figures used for West Germany for 1969 and 1970.

Source: From data made available by the Bureau of Labor Statistics, U.S. Department of Labor.

Both Canada and the United States reveal high standard deviations showing larger absolute fluctuations. However, when these fluctuations are standardized for the higher levels of unemployment, which is done through the coefficients of variation, they fall in line with other countries. What this means is that even though our unemployment rates appear to experience wider swings in response to economic changes, our basic problem is the higher level of unemployment rather than larger fluctuations.

Sources of Differences

To pursue the question of higher unemployment rates in Canada it is not necessary to accept the BLS adjustments as removing all differences which are statistical in origin. Doubtless some differences of this kind remain. But even if the adjusted rates should err by as much as 25 % there would still be reason to inquire why the Canadian rates have been so much higher. In the remainder of this note certain popular hypotheses are tested against the evidence of available statistical data.

Regional variations in the unemployment rate. — A point that is perhaps best introduced at the outset is the fact of regional variation in the unemployment rate in Canada. Because Ontario and the Prairie Provinces are always below the national rate and sometimes well below (in 1971 5.2 % in Ontario and 4.5 % on the Prairies compared with the national average of 6.4 %) it is sometimes argued that the higher Canadian rate reflects the regional problem. The difficulty in dealing with this argument is the fact that all countries have regions with higher-than-average unemployment, but the extent to which other national rates are influenced by regional disparities cannot be determined from available statistics. With reference to Table 2 it may also be noted that even the Ontario rate was higher than the rate of all other countries except the United States.

Labour force growth. — Canada's higher rate of labour force growth is frequently mentioned as a reason for higher unemployment. Table 4 shows that the Canadian labour force did, in fact, grow faster than that of any other country included in the comparison.

The U.S. is the only country whose rate of growth approached Canada's and both these countries have had notably higher levels of unemployment. But closer examination of Table 4 raises doubts concerning the causality of the relationship between labour force growth and unemployment. For one thing, the

Canadian labour force grew much more rapidly in the years 1963-67 than in the years before (1959-63) or after (1967-70), yet unemployment rates in the mid-sixties were the lowest. Also, the British labour force actually declined during the last three years when unemployment rose substantially.

TABLE 4. Percentage Change (Simple Annual Rate) in Labour Force in Selected Industrialized Countries Between Certain Years

(adjusted to U.S. concepts)

Country	1959-63	1963-67	1967-70	1959-70
Canada	2.0	3.5	2.9	34.2
France	0.2	1.1	1.1(1)	8.7
Great Britain	1.3	0.4	- 0.4	5.4
Italy	- 1.0	- 0.2	- 0.4	- 5.8
Japan	1.2	1.9	1.3	17.1
Sweden .....	..	0.1	1.3	..
United States	1.3	1.9	2.3	21.0
West Germany	0.6	- 0.3	0.6(1)	3.0

(1) Percentages calculated using a preliminary estimate based on incomplete data.

Source: U.S. Bureau of Labor Statistics.

A comparison of Table 4 with Chart 1 reveals no systematic relationship between a high rate of labour force growth and unemployment. For example, the Japanese labour force also grew at a higher rate than the European countries but that did not prevent Japan from keeping unemployment at a very low level.

This is not to deny that rapid labour force growth has placed a considerable onus on the Canadian economy in terms of job creation. The foregoing has suggested merely that there is no necessary connection between rapid growth in the supply of labour and the unemployment rate. After examining other factors on the supply side we shall return to the subject of employment growth later.

Labour force composition - The demographic structure of the labour force has an important bearing upon the overall unemployment rate because some age and sex groups are more prone to unemployment than others - notably, young workers and, in most countries, females. Hence, if one country has a higher proportion of its labour force in such groups its overall unemployment should tend to be higher.

The demographic composition of the labour force in 1970 could be obtained for only three countries besides Canada, namely the U.S.A., Japan and Italy (Table 5). French data are for 1968 while those for the U.K. and Sweden are for 1966 and 1965 respectively.

The extreme data case is that of Germany where the latest available information relates to 1961.

Of the four countries for which 1970 data are available only Italy had a higher proportion than Canada for males 25 years and over - a group which generally experiences lower unemployment. Sweden also had a higher proportion of adult males but its data relate to 1965 and the situation might have changed somewhat since then. Both Japan and the United States had a lower proportion of adult males while France and Great Britain were close to the Canadian proportion.

With the exception of Italy, Canada had the lowest proportion of females aged 25 and over. It is hard to assess the effect of this relatively low proportion on the overall unemployment rate for, unlike the other countries, the Canadian female unemployment rate is lower than that of the male. This suggests that a higher proportion of female workers would result in lower overall unemployment. On the other hand, there are reasons to suspect that the reported female unemployment rate under-represents the real loss of female manpower in Canada because of the presence of the "discouraged-worker" effect. Moreover, while the proportion of the female labour force in Canada has been rising fast the (female) unemployment rate has also been rising and the overall impact on the unemployment rate of a higher female labour force is, therefore, uncertain.

TABLE 5. Percentage of Labour Force for Selected Age Groups in
Selected Industrialized Countries

(figures for latest available year)

Age and sex	Canada (1970)	France (1968)	Great Britain (1966)	Italy (1970)	Japan(1) (1970)	Sweden (1965)	United States(2) (1970)	West Germany (1961)
Total labour force	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Males 25 and over	53.3	53.3	52.3	62.0	49.3	56.1	49.6	48.6
Females 25 and over	21.6	25.8	26.2	19.3	29.1	25.2	27.3	24.7
Teen-age workers 15-19 ..	9.7	7.6	11.3	7.4	6.1	7.7	8.9	11.0
Young workers 20-24	15.4	13.3	10.2(3)	11.2	15.5	11.0	14.3	14.6

(1) Japanese distribution excludes unemployed.

(2) U.S. data relate to 16 years of age and over.

(3) Distribution of 20-24 for Great Britain estimated by the author.

Sources: 1. For Canada see Seasonally Adjusted Labour Force Statistics, Statistics Canada (Catalogue 71-201 Monthly) (Ottawa: Information Canada, 1971).

2. For U.S. see Handbook of Labour Statistics, U.S. Department of Labour (1971).

3. For Italy see Annuario di Statistiche Del Lavoro, Vol. XII, Istituto Centrale di Statistichs (1971).

4. For all other countries see Yearbook of Labour Statistics, 1971, International Labour Office, Geneva, Switzerland.

Canada had a higher proportion of workers in the 15-24 years of age group. This does exert an upward pressure on our overall unemployment. The impact of a larger proportion of young workers is greater because Canadian youth experiences an exceptionally high unemployment rate.

On balance, the overall effect of the demographic composition of the Canadian labour force might be to marginally increase its aggregate unemployment rate. The proportion of adult males in Canada's labour force is not very different from most other countries and the effect of the lower proportion of females is uncertain. The slight upward pressure on unemployment is exerted by the higher proportion of young people in our labour force.

Another aspect of labour force composition that affects the unemployment rate is the division between paid workers on the one hand, and self-employed and unpaid family workers

on the other. Individuals in the latter two categories are less exposed to economic fluctuations — or, rather, are more likely to feel the effects of an economic slowdown in the form of underemployment, as distinct from no employment. This is especially true of the self-employed in agriculture. In consequence, since workers of this type are less likely to be unemployed, a high percentage of them in the labour force should tend to lower the unemployment rate while a high percentage of paid workers should have the opposite effect.

It can be seen in Table 6 that the percentage of paid workers in Canada is among the highest, though not so high as in the U.S. and the U.K., and not much higher than in Sweden or West Germany. This factor may have some explanatory value for the differences in unemployment rates vis-à-vis France, Italy and Japan where the proportion of paid workers is very much lower. However, it is worth noting that Japan experienced a very rapid growth in this sector during the sixties.

TABLE 6. Percentage Distribution of Work Status of Employed Persons
in Eight Selected Countries

Country	Salaried employees and wage-earners	Employers and workers on own accounts	Family workers	Wage and salary workers in 1960
Canada(1970)	88.3	10.5	1.5	82
France(1970)	75.7	21.2(1)	..	66
Great Britain(1966)	90.1	8.4	0.7	90
Italy(1970)	67.8	22.7	7.8	62
Japan(1970)	63.6	19.0	16.0	45
Sweden(1965)	85.1	11.2	3.8	77
United States(1970)	90.3	8.3	1.2	84
West Germany(1970)	82.9	10.4	7.0	77

(1) In France employers and workers on own accounts include family workers.

Note: Total of workers with the three statuses may not add to 100 because of a very small fraction whose status is unknown.

Source: See Yearbook of Labour Statistics, 1971, International Labour Organization, Geneva, Switzerland.
For data for wage and salary workers in 1960 see Measuring Employment and Unemployment, U.S. President's Committee to Appraise Employment and Unemployment, p. 262.

Industrial structure. - A high percentage of the labour force in agriculture, like other forms of self-employment, tends to lower the overall unemployment rate. Although the statistics in Table 7 do not distinguish agriculture from other primary industries, one might infer that Italy and Japan derive the most "benefit" in this respect; Canada,

with a relatively low percentage, would derive very little. It may also be noted, however, that both Japan and Italy experienced a high rate of displacement from the agricultural sector in the period under review and have therefore had the added strain of providing other jobs for displaced farm workers.

TABLE 7. Percentage Distribution of Labour Force in Eight Selected
Countries by Industrial Sector

Country	Agriculture, forestry, hunting and fishing	Mining, manufacturing and construction	Service sector (includes utilities)
Canada (1971)(1)	7.4	28.0	64.6
France (1970)(1)	13.4	36.5	50.1
Great Britain (1966)	3.1	44.9	51.9
Italy (1970)(1)	19.0	41.6	37.6
Japan (1970)(1)	19.1	33.5	46.0
Sweden (1965)	11.8	42.1	45.7
U.S.A. (1970)(2)	4.3	42.2	53.9
West Germany (1970)	8.9	48.4	42.5

(1) Excludes persons seeking work for the first time and unemployed.

(2) Excludes persons seeking work for the first time.

Source: See Yearbook of Labour Statistics, 1971, International Labour Organization, Geneva, Switzerland.

The other noteworthy feature of the table is that Canada and the U.S. have the highest proportion in the service industries and the lowest proportion in mining and secondary industry; but it is difficult to relate this difference to higher unemployment. There seems no reason to believe that the service sector, as a whole, is more vulnerable to unemployment than manufacturing and it is probably less vulnerable than construction.

Seasonality.— Seasonality plays an important role in Canadian unemployment. Employment in a number of industries is affected by the unusually long and severe winter thereby causing higher levels of unemployment. It is not known to what extent seasonal factors are important in the other countries. It might be presumed, however, that they are less significant than

in Canada with the probable exception of Sweden.

Growth in employment and production.— Turning now to the record on employment, Table 8 repeats the labour force changes to facilitate ready comparisons. In all countries the two tend to move rather closely for the obvious reason that employed persons form the bulk of the labour force. In Canada the high rate of labour force growth is matched by a rate of employment growth which exceeds that of any other country in the comparison. This is true even for the later years (1967-69) when the rate of growth in employment had slackened — on an annual average basis from 3.4 % in the period 1963-67 to 2.6 % in 1967-69. What is also noteworthy about these latter years is that Canadian employment grew less rapidly than the labour force. In all other countries with a growing labour force employment increased at the same or a higher rate during this period.

TABLE 8. Percentage Change in Labour Force(1) and Employment in Selected Industrialized Countries Between 1959-63, 1963-67 and 1967-69

Country	1959-63		1963-67		1967-69	
	Labour force	Employment	Labour force	Employment	Labour force	Employment
Canada	8.1	8.6	13.5	15.7	5.9	5.4
France	1.7	2.4	3.1	3.4	0.9	0.9
Great Britain	3.9	4.3	1.0	1.1	- 0.7	- 0.6
Italy	- 5.4	- 2.6	- 1.8	- 2.8	- 1.1	- 1.3
Japan	5.0	6.0	7.1	7.1	2.4	2.4
Sweden	6.2	6.2	.1	- .4	2.0	2.3
United States	5.2	4.8	8.3	9.8	4.3	4.7
West Germany	2.7	3.5	- 1.2	- 2.5	1.0	2.1

(1) The labour force statistics here are from a different source than in Table 4. These are unadjusted (to U.S. concepts) but have been used here to retain comparability with the employment figures.

Source: See Labour Force Statistics 1958-69, Organisation for Economic Co-operation and Development (Paris, 1971).

Changes in gross national product for the same three time periods may be examined in Table 9. For Canada we find the same upsurge in the mid-sixties and subsequent falling off that marked the employment statistics, but not the same commanding lead over other countries. In the early sixties GNP in Canada grew at a slower rate than in the other countries excluding only the United

States and Great Britain. This was a time of high unemployment in Canada. In the mid-sixties the Canadian position improved dramatically, the rate of increase in these four years being second only to that of Japan, but the rate declined after 1967 so that in ranking the eight countries for the last two years of the decade Canada placed 5th.

TABLE 9. Growth Rate of Gross National Product, Industrial Production and Productivity in Selected Countries

Country	G.N.P. (per cent increase)			Annual growth rate of		
	1959-63	1963-67	1967-69	G.N.P. 1960-70	Industrial production 1960-70	Manufacturing productivity (1) 1961-70
Canada	17.6	23	9.6	5.0	6.1	3.5
France	28.2	23	13.8	5.8	5.8	6.3(2)
Great Britain	13.6	13	3.5	2.8	2.8	3.4
Italy	28.7	21	10.7	5.6	7.0	6.5
Japan	56.3	47	28.6	11.0	13.9	11.1
Sweden	19.0	19	9.2	4.6	6.5	6.3(3)
United States	16.3	23	7.3	4.0	4.8	3.1
West Germany	23.5	16	15.5	4.8	5.7	5.1

(1) Productivity relates to compound rate of growth in net product per employed person in manufacturing except for France and Sweden.

(2) Net product per man-hour in industrial sector during 1962-70.

(3) Net product per employed person in industrial sector during 1961-69.

Sources: 1. For G.N.P. see National Accounts of OECD Countries 1953-69.

2. For annual growth rate of G.N.P. and industrial production see Main Economic Indicators, OECD Historical Series 1959-69 and March 1972.

3. For productivity see Yearbook of Labour Statistics 1971, International Labour Organization, Geneva, Switzerland, Tables 17B and 17C.

Taking the decade as a whole the performance of the Canadian economy appears to compare favourably with most of the seven other countries. While it did not approach the spectacular growth rates of Japan, only two other countries had larger increases in GNP (France and Italy) and in the index of industrial production (Sweden and Italy). Thus, the relatively strong performance of production indicators is somewhat at variance with the higher rates of unemployment which characterize Chart 1.

Production indicators have been particularly sluggish in the U.K. yet unemployment, though rising, has remained well below the Canadian average. The American production indicators have lagged the Canadian ones but the unemployment experience has been marginally more favourable. The factor which seems to differentiate the Canadian experience is the higher rate of labour force growth.

The latter, examined earlier, appeared to have but little explanatory value when considered in isolation. But when the high rate of labour force growth is set against what might be termed an average rate of increase in production, the combination is one which could be expected to produce some tendency towards higher unemployment.

Technological change. - Until recently, at least, technological advancement has been

considered synonymous with progress. Massive changes in technology, however, are frequently accompanied by massive relocations of manpower, so that a country that is experiencing a higher rate of technological change may pay a price in terms of higher frictional unemployment. It follows that if, ceteris paribus, the rate of technical advancement was higher in North America during the sixties some upward pressure on the frictional unemployment rates would be likely. This possibility cannot be explored in any depth because statistical series which would provide a satisfactory measure of the rate of technological change are not available. Probably the best available statistics, though admittedly partial, are the changes in productivity (defined as output per employed person) in manufacturing presented in Table 9 (last column). These reveal that both North American countries placed, along with the U.K., at the bottom of the list. Insofar as productivity gains in manufacturing may be taken as an index of technological change there is, in fact, a negative correlation with unemployment rates. This might suggest that direct and indirect stimulation of demand through gains in productivity more than compensates for the frictional unemployment caused through changes in technology.

Institutional factors. - It is probably safe to conclude that varying standards of economic performance account for some part of

the differences in the unemployment experience, though how and to what extent remains unclear. But there are other differences — these reflecting the socio-economic and legal frameworks within which national economies operate. Differences of this kind are particularly noteworthy between the two North American countries and all others. Japan offers an extreme example where a high proportion of workers have a life time tenure with their employers which means that the Japanese employer is forced to absorb the wage bill for workers during a cut-back in production. The European worker, too, is said to have a greater attachment to his firm than is the case in North America and the employer's obligation to his workers is more rigorously conceived. Most of these countries have legal restrictions on lay offs requiring employers to give advance notice before taking such action(3).

It is sometimes argued that the factor of attachment to the employer also reduces turnover and mobility. Because turnover and mobility are thought to be important to economic growth this is usually viewed as a negative factor. Yet during the sixties several of the countries examined underwent substantial structural shifts which could only be achieved through high labour mobility.

The role of apprenticeship in channeling new workers into regular employment is of much greater importance in Europe than in North America. This is a partial but important explanation for the latter's higher unemployment rates among labour force entrants in general and of young workers in particular. Both Canada and the U.S. place greater emphasis on formal education than do European countries where vocational and on-the-job training are more important. European job training programs also involve a closer involvement with and co-operation from firms. Vocational training has recently assumed a larger role in Canada, though still with a heavy classroom emphasis. Meanwhile, our youth unemployment rate continues to be very high and exerts an upward influence on the overall rate.

A comparative study of monetary and fiscal policies lies well beyond the scope of the present inquiry but indirect evidence of their influence should at least be noted. For

- (3) For a discussion of this and other points relating to institutional differences see David Bauer, "Low Unemployment Rates Abroad", Conference Board Record, August 1969, pp. 51-56.

example, the rate of price increase experienced in Japan suggests that a lower priority was given to controlling inflation which, presumably, has helped to keep unemployment low.

Conclusions

Having compared the unemployment rates in eight countries and scrutinized some popular reasons for the differences, the main points to emerge might be summarized as follows:

- (1) Canada had the highest unemployment rate in 1971 and its rate has been the highest for some time. Very little of the disparity could be explained by differences in methods of measuring unemployment;
- (2) Canada's labour supply grew faster than that of any other country. While the international comparison failed to reveal a clear positive correlation between growth in the labour force and higher unemployment, the combination of rapid labour force growth and a merely average rate of increase in gross output appeared to have more explanatory power;
- (3) Canada has a higher proportion of its labour force in the 15-24 years of age group which exerts a small upward pressure on our overall unemployment rate;
- (4) Canada, like the U.S., has some disadvantage in the low proportion of self employed but this affected the comparison with only a few countries. The industrial structure offered few clues per se;
- (5) Seasonality is an important factor contributing to the relatively higher average annual unemployment in this country. However, information is not available regarding the relative importance of this factor in other countries;
- (6) No evidence was found to suggest undue stress arising from technological change;
- (7) Differences in the socio-economic and legal institutions appeared to be an important source of the inter-country variations in the amount of unemployment.

ABSENTEES — OFF WORK FOR HEALTH REASONS — CANADA 1970

May Nickson*

Statistical methodology for measuring national health and welfare has generally lagged behind that of the economic indicators. (1) A large portion of the nation's resources is allotted to the promotion of health and environmental control; yet data development has been largely confined to specific policy interests (e.g. physical fitness tests, hospital diagnosis, accident fatalities, traffic accidents, etc.). Little is available for judging overall health.

In the case of illness certain yardsticks are obtained by coupling measures of specific illness — provided by the hospital morbidity statistics — with related population data. But even here, as the Department of National Health and Welfare points out, we fail to find a true measure of illness trends because there are no complementary data on illness treated at home, in the doctor's office or the out-patient clinic. (2) Data on work-related accidents and illnesses are also partial. Produced by provincial workmen's compensation boards, the coverage of illness is quite restricted, composite national data have not been developed, and provincial tabulations are unrelated to appropriate population measures.

This paper reports on a 1971 survey which represents a first collection of data on persons absent from work for health reasons: accidents, illness or pregnancy. As a general measure of health in Canada the data are somewhat restrictive but, given the paucity of data in the field, they should provide a useful point of departure.

Methodology

The source data are supplementary questions added to the regular Labour Force Survey conducted monthly by Statistics Canada. Household respondents were asked to recall:

- (1) Which members of the household had

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- (1) See Eighth Annual Review: Design for Decision-Making — An Application to Human Resources Policies, Economic Council of Canada (Ottawa: Information Canada, 1971), pp. 21-26.
- (2) See Hospital Morbidity Statistics Jan. 1 — Dec. 31, 1968, Department of National Health and Welfare (Ottawa: Information Canada).

worked for pay at any time during the calendar year 1970;

- (2) Which of these persons had had absences lasting two consecutive weeks or more in that calendar year.

In order to reduce potential recall errors the survey was carried out early the following year (i.e., mid-February 1971). The minimum of two weeks absence was required in the belief that shorter periods would be more easily forgotten. Thus, while missing shorter absences altogether, the data should benefit by having more complete coverage of the particular phenomenon selected.

Basic Populations Used for Tabulations

Due to the nature of the survey — mixing recall information with responses to a current questionnaire — it was necessary to alter the employment coverage depending on the characteristics being studied. In general the largest appropriate base was selected from the following:

- (1) Total annual employment 1970 — the population who could have had work absences — is used for comparisons with labour force status in February 1971. The total annual employment was 9.5 % above the average annual employment in 1970. Tabulations using this base give equal weight to persons with full-year and part-year labour force participation (part-year includes students, new entrants, seasonal workers, etc.);
- (2) Average annual employment compiled from 12 monthly labour force surveys reduces the weight given part-year workers and approximates man-years;
- (3) Employed in February 1971 is used as a base for analysis by industry and occupation, this being the universe for which this information was available;
- (4) Persons returning from absence provide the base for duration of absence, since the duration of illness was not available for those who did not return to

- (3) See notes on reliability of data in the monthly publication The Labour Force, Statistics Canada (Catalogue 71-001 Monthly) (Ottawa: Information Canada).

work or who were still off in February 1971. The group accounted for about 86 % of the total absences recorded for this report.

Reliability

The survey is subject to the variability of estimates outlined in the Labour Force Survey.(3) The possibility of error may be further increased by a memory bias since the questions required respondents to recall incidents which happened in the previous year. Studies in the recall field lead us to expect that household respondents would quite accurately recall their members who had had lengthy illnesses, but that information on

duration, number of absence periods and earnings might not be so well remembered and could have some inherent bias. For this reason most of the detailed tabulations and analysis in the report are given for persons with absences not the total number of absences.

Absentee Rates

The term 'absentee rate' is used to indicate the number of persons who had absence periods, not the total number of absences. The total number of persons who had absences (one or more) lasting a fortnight or longer was 881,000. Expressed as a percentage of average annual employment in 1970 this supplies an absentee rate of 11.2 % (Table 1),

TABLE 1. Persons Absent From Work by Type of Absence, by Sex and Rate Per Man-year Employment, Canada, 1970

Sex and type of absence	Number of persons absent	Average annual employment	Absentee rate per man-year
	'000		%
Males:			
Absence due to accident	176		3.3
Absence due to illness	355		6.7
Total	531	5,310	10.0
Females:			
Absence due to accident	35		1.4
Absence due to illness	219		8.5
Absence due to pregnancy	95		3.7
Total	349	2,569	13.6
Both sexes:			
Absence due to accident	211		2.7
Absence due to illness	575		7.3
Absence due to pregnancy	95		1.2
Total	881	7,879	11.2

The overall rate was higher for females than for males but this was because of the uniquely female childbearing function. Omitting the 3.7 % absentee rate related to pregnancy, females had about the same absentee rate as males, roughly 10 %. However, the distribution by type of absence - whether resulting from accidents or other illness - was quite different. Males, with a 3.3 % accident rate, appeared to be more accident prone than females with 1.4 %. Some of this difference may denote special female characteristics such as cautiousness or orderliness, but doubtless the main factor would be that the jobs with the most accidents are normally

filled by males, e.g. forestry, construction, mining. On the other hand, the fact that women had more absences related to illness than men (8.5 % against 6.7 %) does not mean that they are the weaker sex. The primary reasons may well be economic. For example, many women carry heavy home responsibilities in addition to those at work, thus placing greater demands on their health; many women function as secondary family earners more able to take breaks in their earnings; and many female jobs have been traditionally related to typing, bookkeeping, etc., which are easier to postpone than jobs relating to production processes.

Characteristics of Absentees

Age. — Age appears not to be a very important factor in a person's ability to have or prevent accidents (see Table 2). The fact that persons 20-24 years of age had slightly more than average accidents per employee while those over 65 had somewhat less

than average could readily be explained by the type of jobs they do. There is a wide-spread view that young people have more accidents than older workers, but the small variance in accident rates found in this study indicate that they might be less subject to serious injuries as well as more able to recuperate within two weeks.

TABLE 2. Persons Absent From Work Due to Accident or Illness, Average Annual Employment and Absentee Rates by Age and Region, Canada, 1970

Age and region	Number of absentees		Average annual employment	Absentee rate	
	Absence due to accident	Absence due to illness		Absence due to accident	Absence due to illness
	'000			per cent	
Age:					
14-19 years	15(1)	20(1)	744	2.0(1)	2.7(1)
20-24 "	37	62	1,179	3.1	5.3
25-44 "	93	230	3,402	2.7	6.8
45-64 "	64	244	2,356	2.7	10.4
65 years and over	--	19(1)	198	--	9.6(1)
Total	211	575	7,879	2.7	7.3
Region:					
Atlantic	18	48	609	3.0	7.9
Quebec	60	175	2,144	2.8	8.2
Ontario.....	78	233	2,996	2.6	7.7
Prairies	27	65	1,320	2.0	4.9
British Columbia	28(1)	54	810	3.5(1)	6.7
Total	211	575	7,879	2.7	7.3

(1) These data are based on smaller samples and may be useful for some purposes but are not reliable enough to be used without caution and qualification. Hence, in subsequent use, these qualified data should be accompanied by specific reference cautioning high sampling variability.

With illness age does seem to be an important factor. The older the person, the more apt he is to be absent for a lengthy period. Persons in the 14-19 age group had an illness rate of 2.7 % while those aged 45-64 years had a rate of 10.4 %. The fact that the rate dropped slightly (to 9.6 %) for those over 65 may be entirely due to the inadequacy of the sample for this group or it may reflect a genuine change occurring at this point. Perhaps retirements have removed the least healthy from the labour force. Or it

may be that part of the reason why illnesses increase with age is due to an accrual of sick leave benefits, sometimes lost after age 65. However, the size of the total age variation suggests that the susceptibility to illness definitely increases with age.

Absences due to pregnancy were of course a function of age. If the sample surveyed had been large enough to permit more age groups this, without doubt, would have been indicated more clearly.

TABLE 3. Females Absent From Work Due to Pregnancy by Age and Region, Canada, 1970

Age and region	Number of absentees absent due to pregnancy	Average annual female employment	Absentee rate (absences due to pregnancy)
		'000	%
Age:			
14-19 years	--	327	--
20-24 "	41	499	8.2
25-44 "	46	1,006	4.6
45-64 "	--	696	--
65 years and over	--	42	--
Total	95	2,569	3.7
Region:			
Atlantic	11(1)	193	5.7(1)
Quebec	25(1)	678	3.7(1)
Ontario	39(1)	1,002	3.9(1)
Prairies	13(1)	426	3.1(1)
British Columbia	--	270	--
Total	95	2,569	3.7

(1) See footnote 1, Table 2.

Regions. — Regional variance could be caused by many factors such as industry mix, age distribution, amount of female employment, sickness benefits available, climate, or economic conditions. Thus the higher-than-average rates in the Atlantic Region, both for accidents and illnesses, may to some extent reflect its fishing and mining industries. On the Prairies, where much of the employment is in agriculture and in small businesses, there might be a greater tendency for a partial return to work thus lowering the absentee rates for this region. The fact, too, that certain western provinces were early in the field of prepaid health care raises the question whether the lower illness rates in the west may to some extent reflect the success of government health plans in raising the general level of health and well-being.

Absences due to pregnancy were highest in the Atlantic Provinces and lowest in British Columbia, generally following the current regional birth rates.

Industry. — Distribution of accidents by industry (Table 4) spreads the sample somewhat thinly so that some of the rates shown may have a wide margin of error. However, the results are generally consistent with those being found in preliminary tabulations

of accidents reported to workmen's compensation boards with standard industry codes assigned by Statistics Canada. The primary industries had the highest accident rate followed by construction and manufacturing. The rate was somewhat lower in the transportation industry and much lower in the other service industries. The range was from over 6 % in the primary industries to 1 % in service.

Illness rates tended to be much the same among industries. The goods-producing industries had slightly higher rates than the service industries, except for public administration which was also above-average. It is likely that the number of absences due to illness extending two weeks or more will reflect both the physical demands of the job and the contractual provisions for paid sick leave.

Occupation. — Managerial and professional groups had the lowest absentee rates for both accidents and illnesses. Such persons are likely to have both greater responsibility and interest in their jobs which makes them more apt to reduce the duration of absences, possibly with a part-time return to work. Clerical, sales and services personnel also had lower-than-average absentee rates,

TABLE 4. Persons Absent From Work in 1970 Due to Accidents or Illness by Industry and Occupation of Persons in February 1971, Canada

Industry and occupation	Proportions with absences in 1970		
	Due to accidents	Due to illnesses	Due to accidents and illnesses
	per cent		
Industry:			
Agriculture	--	--	--
Other primary	6.3(1)	9.4	15.7
Manufacturing	4.2	9.0	13.2
Construction	6.3(1)	6.3(1)	12.6
Transportation, etc.	3.4(1)	8.0	11.4
Trade	1.6(1)	5.4	7.0
Finance	--	6.0(1)	6.8(1)
Service	1.1(1)	5.5	6.7
Public administration	--	8.2	10.4
Total	2.5	6.6	9.1
Occupation:			
Managerial	--	4.7	5.3
Professional	--	4.6	5.6
Clerical	1.1(1)	6.6	7.7
Sales	--	6.3	7.9
Service	2.1(1)	6.7	8.8
Transportation, communication	4.0(1)	8.4	12.4
Logging	--	--	25.0(1)
Mining	--	--	21.6(1)
Crafts	4.8	9.1	13.9
Labourer	6.7(1)	8.1(1)	14.8
Farming	--	--	--
Total	2.5	6.6	9.1

(1) See footnote 1, Table 2.

no doubt aided by the less rigorous requirements for physical fitness compared to the blue collar jobs. The highest rates were for logging and mining trades. The occupation "labourer" also recorded absentee rates well above average both for accidents and illnesses. This group would be lacking in job training and may also have somewhat lower standards of health due to lack of income and/or nutritional knowledge.

Work-related Absences

The accidents reported to this survey were not necessarily work-related. Our knowledge is limited to the fact that the accident, however it occurred, involved a two-week absence from work. To test whether accidents were more likely to have occurred at work

absentees were divided between those receiving workmen's compensation and all others.(4) Table 5 shows more than half the male accidents which were serious enough to involve a two-week absence to be thus work-related. Since this exceeds the percentage of time normally spent on the job (a work-week of 45 hours would be about 40 % of the total hours in the week after allowing for 8 hours sleep per night) it would appear that male workers are somewhat more likely to have accidents at work than in other areas of daily living.

(4) Virtually all work accidents would be selected by this method since workmen's compensation boards insure about 85 % of the total employees in Canada, cover most of the more dangerous occupations, and compensate for nearly all work-related injuries.

TABLE 5. Proportion of Absentees by Type of Absence and Sex
Receiving Workmen's Compensation, Canada, 1970

Type of absence and sex	Absentees receiving workmen's compensation	Total absentees	Per cent receiving workmen's compensation
	'000		%
Accident:			
Males	95	176	54.0
Females	11(1)	35	31.4(1)
Total	106	211	50.2
Illness:			
Males	10(1)	355	2.8(1)
Females	--	219	--
Total	12(1)	574	2.1(1)
Total	118	786	15.0

(1) See footnote 1, Table 2.

In the case of females, less than one third of the accidents happened at the work area according to this test. Contributing to this lower rate would be the fact that women average less work hours per year and tend to have less active types of work. Employed females also had a lower accident rate than males outside the work environment (non-workmen's compensation board absentees yield a rate of 0.9 % for females, 1.5 % for males).

Few illnesses were compensated through workmen's compensation boards which, traditionally, have tended to insure only illnesses which are shown to be directly caused by the work environment, e.g. silicosis, dermatitis, etc. While the boards do compensate other illnesses such as heart attacks or traumas, on occasion it is generally difficult to pin-point the environment as the major culprit in the case of illness. The American Occupational Safety and Health Act of 1970 emphasizes the need for analysis of work-related illnesses and it is possible that more illnesses will show up as work-related following the implementation of this Act.

Economic After-effects

An attempt has been made to obtain some indication of the economic after-effects of accidents and illness by comparing the labour force status of the absentees at the time of the survey with that of all other persons who

worked in 1970 (Table 6). The measure can only be taken as a rough indication as the follow-up interval is short for absences which occurred late in the year and because February is a low employment month.

Males who had accidents in 1970 were more likely to be unemployed at the time of the survey than those with absences due to illness or with no absence at all. To what extent this might reflect the seriousness of the accidents is difficult to say. Clearly, injuries do occur which prevent the worker from holding his former job and, once separated, new employment is often difficult to find. But there are other factors. The job itself is one; the risk of accident and the risk of unemployment may be closely related. It is also possible that some accidents are associated with personality traits that make it difficult to obtain and keep employment - carelessness, tension, absent-mindedness, etc.

In addition to higher unemployment the men with accidents were found to have a lower rate of withdrawal from the labour force in February of the following year. It may be that expenses stemming from the accident increased the need to earn, or perhaps a relationship exists between economic need and the likeliness to have accidents.

Illness did not appear to alter the ability to maintain, or find, employment.

TABLE 6. Labour Force Status in February 1971 of Persons Ever Working in 1970
by Sex and by Type of Absence in 1970, Canada

Sex and type of absence	Labour force status in February 1971			
	Total	Employed	Unemployed	Non-labour force
	per cent			
Males:				
Absence due to accident	100.0	82.4	12.1(1)	5.6(1)
Absence due to illness	100.0	85.4	7.5(1)	7.0(1)
Total absentees	100.0	84.4	9.0	6.6
Without absence	100.0	81.9	8.0	10.2
Total ever worked	100.0	82.1	8.1	9.8
Females:				
Absence due to accident	100.0	77.9(1)	3.7(1)	18.5
Absence due to illness	100.0	76.6	5.0(1)	18.3
Total absentees	100.0	76.8	4.8(1)	18.4
Absence due to pregnancy	100.0	31.3	4.0(1)	64.7
Total absentees	100.0	64.4	4.6(1)	31.0
Without absence	100.0	75.5	3.6	20.9
Total ever worked	100.0	74.3	4.7	22.0

(1) See footnote 1, Table 2.

The unemployment rate was no higher for males with work absences due to illness than for those with no absences at all. However, the proportion leaving the labour force was less. In view of the relationship between aging and illness the latter result is somewhat puzzling and may reflect a data problem. Specifically, since the total covers all persons who worked in 1970 it may be that the non-labour force total is inflated by young summer employees who had no absences and were back at school in February. On the other hand, this distortion might be minimal, in which case the lower rate of exodus from the labour force suggests some effects stemming from the additional expenses and/or lost income associated with illness.

Accidents did not have the same after-effects for women. Those who had accidents record the same proportion unemployed as those with no absences at all, perhaps because female injuries tend to be less severe, causing shorter absences from work and not seriously impairing ability to perform their former jobs.

The effect of illnesses on female employees again differs from the male experience, in this case raising the proportion unemployed above those without sick leave. There is not the same social pressure on employers to keep jobs open when the absent employee is female nor are females likely to have unique skills or the same unionized protection as males.

Pregnancy absences are of course quite different from other types. In Table 6 two thirds of the women who were absent from jobs for this reason in 1970 were outside the labour force in February 1971. The survey cannot say, of course, how long such women stayed home but there are clearly a high percentage of women in the home when the babies are small.

Number of Periods Absent

Replies to the question on number of absence periods are tabulated in Table 7. Over 80 % of absentees reported only one such period during the year and another 11 %

reported two. The other 9 % of the replies were spread over three, four or five periods, with the highest number in five. Since five periods of two consecutive weeks absence during a year seems an unusual number to recall it is probable that the question was

confused with a later question on duration of absence. Taking the replies at face value would indicate 1.38 absences per absentee. For rough calculations on time lost (see Table 7) the fifth time period was reduced leaving 1.20 absences per absentee.

TABLE 7. Persons Absent by Number of Absence Periods, Total Absences and Rates of Absences Per Absentee for Selected Groups, Canada, 1970

Characteristic	Total absentees	Seclected groups		
		Male absentees	Female absentees	Absentees receiving workmen's compensation
'000				
Number of absence periods:				
1 period	709	425	284	98
2 periods	96	61	35	--
3 "	22(1)	14(1)	--	--
4 "	13(1)	--	--	--
5 "	40	23(1)	17(1)	--
Total absentees	881	531	349	118
per cent				
1 period	80	80	81	83
2 periods	11	11	10	--
3 "	2(1)	3(1)	--	--
4 "	1(1)	--	--	--
5 "	5	4(1)	5(1)	--
Total absentees	100	100	100	100
'000				
Total absences:				
As reported(2)	1,220	739	480	160
Adjusted for reporting bias(2)	1,060	647	412	140
Rates of absences per absentee:				
As reported(2)	1.38	1.39	1.38	1.36
Adjusted for reporting bias(2)	1.20	1.22	1.18	1.19

(1) See footnote 1, Table 2.

(2) Adjustment assumes all persons reporting 5 or more absence periods actually had 1 period of long duration; no adjustment was made to those reporting 4 periods although there may have been misreporting here also.

Duration of Absences

Information on duration was gathered for the last absence only. It was thought that this would reduce the memory bias and produce a representative distribution. Tabulations on duration were also limited to those who had returned to work since this information was not yet established for those still

absent in February 1971. Table 8 reveals different patterns of duration for different types of absences. The longest absences were of course associated with pregnancy; over half the women who did return to work had taken leave for a period of two months or more. However, when pregnancies are excluded women tended to have shorter absences than men for both accidents and illnesses. With

both sexes absences following accidental injury tended to be longer than those due to illness. The duration of absences due to accidents appeared to be somewhat shorter when the injuries were covered by workmen's compensation. Since it seems unlikely that work injuries would be less serious than others, one might infer the shortened absence

reflects first aid facilities at places of work and rehabilitation services provided by the workmen's compensation boards.

Overall, over half the absentees returned to work within a month but the mean average time off is estimated at 7.2 weeks.

TABLE 8. Absentees Who Returned to Work by Duration and Type of Absence, by Sex, Canada, 1970

Sex and type of absence	Duration of absence							
	Total	2 weeks	3 weeks	4 weeks	6 weeks	2 months	3 months or more	5 months or more(1)
	'000							
Males:								
Absence due to accident	167	32	25(2)	25(2)	21(2)	19(2)	43	18(2)
Absence due to illness	333	87	57	51	37	37	59	29
Females:								
Absence due to accident	29	--	--	--	--	--	--	--
Absence due to illness	196	58	32	34	24(2)	16(2)	32	12(2)
Absence due to pregnancy	37	--	--	--	--	--	21(2)	--
Workmen's compensation absentees	111	23(2)	17(2)	18(2)	15(2)	14(2)	25	--
	per cent							
Males:								
Absence due to accident	100	19	15(2)	15(2)	13(2)	12(2)	27	11(2)
Absence due to illness	100	26	17	15	11	11	19	9
Females:								
Absence due to accident	100	--	--	--	--	--	23(2)	--
Absence due to illness	100	30	16	17	12(2)	8(2)	16	6(2)
Absence due to pregnancy	100	--	--	--	--	--	59(2)	--
Workmen's compensation absentees	100	21(2)	15(2)	16(2)	14(2)	13(2)	22	--

(1) Also included in column "3 months or more".

(2) See footnote 1, Table 2.

Total Time Lost

Estimates were made of the total time lost in absences - again excluding absentees who had not returned at the time of the survey. Assuming that each man-year worked is equal to 50 weeks, the absences of two weeks or more due to accident, illness and pregnancy accounted for 1 2/3 % of the total employment time in 1970. From data regularly reported to the Labour Force Survey it is estimated that the average number of persons on sick leave per week was 2.6 % of the employment in 1970, with 1.7 % absent a full survey

week.(5) The rate has shown a gradual annual increase since 1961 (when it totalled 1.7 %). Males have continuously had a slightly greater illness rate than females and their pattern of seasonal fluctuations has been less extreme.(6)

(5) Calculated from special tables in The Labour Force, op. cit.

(6) See Peter Hicks "Persons at Work Less Than a Full Week: Seasonal Patterns", Notes on Labour Statistics 1971, Statistics Canada (Catalogue 72-207 Annual) (Ottawa: Information Canada).

TABLE 9. Average Duration of Absences by Sex and Type of Absence
for Persons Returning to Work, Canada, 1970

Sex and type of absence	Number of returning absentees	Total weeks absent	Average duration of absences
		'000	
Males:			
Absence due to accident	167	1,278	7.6
Absence due to illness	333	2,303	6.9
Total	500	3,581	7.2
Females:			
Absence due to accident	29	218	7.4
Absence due to illness	196	1,174	6.0
Total(1)	262	1,880	7.2
Workmen's compensation absentees	111	817	7.4

(1) Female total excludes absences due to pregnancy.

TABLE 10. Weeks Lost Through Absences as a Proportion
of Weeks Worked by Sex, Canada, 1970

Sex	Weeks worked(1)	Weeks lost(2)	Proportion lost
		'000	%
Males	265,500	4,333	1.63
Females	128,450	2,218	1.73
Total	393,950	6,551	1.66

(1) Average annual employment times 50 weeks.

(2) Returning absentees times average weeks lost times average periods absent per absentees, excluding 5 times period (see Tables 7 and 9).

Remuneration

Information on this topic may be rather quickly outdated as federal legislation passed subsequent to the survey will greatly alter the pattern of remuneration paid in future years. Nevertheless, it is worth recording the survey's findings. As shown in Table 11, about one quarter of those absent received full pay, one half got either partial pay or

workmen's compensation, while a final quarter received no remuneration at all. When the absence was of short duration (under one month) a higher proportion got full pay and when the absence lasted over three months very few got full pay and more than one third had no remuneration at all. For short absences a larger proportion of women than men got full pay, but when the absence was over three months more than half the females had no remuneration

TABLE 11. Distribution of Absentees by Duration of Absence,
Type of Remuneration and Sex, Canada, 1970

Type of remuneration	Duration of absence								
	Total returning	2 weeks	3 weeks	4 weeks	6 weeks	2 months	3 months	4 months	5 months or more
per cent									
Both sexes:									
Full pay full-time	27	41	37	25	24(1)	20(1)	--	--	--
Full pay part-time	5	--	--	--	--	--	--	--	--
Part pay	23	17	19(1)	25	31(1)	27(1)	28(1)	--	27(1)
Workmen's compensation ...	14	12(1)	14(1)	15(1)	16(1)	17(1)	--	--	--
No pay	27	26	23	28	20(1)	26(1)	36(1)	--	36(1)
Combinations and unknown	3(1)	--	--	--	--	--	--	--	--
Total	100	100	100	100	100	100	100	100	100
Males:									
Full pay full-time	26	37	35	23(1)	23(1)	--	--	--	--
Full pay part-time	3(1)	--	--	--	--	--	--	--	--
Part pay	27	19(1)	23(1)	28(1)	37(1)	32(1)	32(1)	--	31(1)
Workmen's compensation ...	19	17(1)	18(1)	20(1)	23(1)	23(1)	--	--	--
No pay	20	24	19(1)	21(1)	--	--	--	--	--
Combinations and unknown	3(1)	--	--	--	--	--	--	--	--
Total	100	100	100	100	100	100	100	100	100
Females:									
Full pay full-time	29	47	43	29(1)	--	--	--	--	--
Full pay part-time	7(1)	--	--	--	--	--	--	--	--
Part pay	17	--	--	--	--	--	--	--	--
Workmen's compensation ...	4(1)	--	--	--	--	--	--	--	--
No pay	41	29(1)	32(1)	41(1)	--	--	60(1)	--	61(1)
Combinations and unknown	--	--	--	--	--	--	--	--	--
Total	100	100	100	100	100	100	100	100	100

(1) See footnote 1, Table 2.

Summary of Findings

The total number of persons who had absences (one or more) lasting a fortnight or longer was 881,000. The absentee rate expressed as a percentage of the average annual employment for 1970 was 11.2 %. The average employer then, if the pattern holds, might expect that over 11 % of his work force would be absent on sick leave, or the equivalent, at least one fortnight each year.

If total absences including repeats had

been included the number would have been increased by about one fifth to something over 13 %.

Over half the accident and illness cases covered by this report returned to work within a month, but the mean average time off was estimated at 7.4 weeks.

About one quarter of those absent received full pay, one half got either partial pay or workmen's compensation while a final quarter received no remuneration at all.

CONTRIBUTIONS DE LA POPULATION ET DU TAUX D'ACTIVITÉ À LA POPULATION ACTIVE, 1953-71

Nicole Gendreau*

Cet article traite de l'influence de l'accroissement démographique et des variations du taux d'activité sur l'effectif de la population active canadienne au cours des vingt dernières années. L'évolution de ces séries y est exposée. Les contributions distinctes de la population et des taux d'activité aux changements dans les effectifs de la population active sont analysées de même que sont indiquées les causes sous-jacentes à la croissance des divers secteurs de la population active.

Définition de la population active

La population active canadienne est une mesure statistique de l'offre de main-d'oeuvre contribuant à la production nationale des biens et services. Elle est définie comme cette partie de la population civile non-institutionnelle âgée de 14 ans et plus qui, au cours de la semaine de référence, détenait un emploi ou cherchait du travail. Les concepts utilisés afin de mesurer ces deux groupes sont définis d'une façon précise et la population active est la somme de ces deux ensembles.

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Les personnes dont les activités ne sont pas pertinentes à la population active forment le groupe des "inactifs". Le système de priorités intégrés à la classification des activités fait des "inactifs", un groupe résiduel. Ainsi, les maîtresses de maison et les étudiants (ou autres personnes) travaillant à temps partiel sont considérés comme employés. Un tel système de priorités assure que la population active soit calculée dans sa totalité puisque toute activité sur le marché du travail, sans considération du temps ou de l'importance du travail pour la personne qui l'accomplit, fait considérer l'individu comme membre de la population active.

Population, population active et taux d'activité, 1953-71

Entre 1953 et 1971, la population canadienne non-institutionnelle âgée de 14 ans et plus(1) passait d'environ 10 millions à 15 millions et demi, et la population active, de 5 millions et demi à 8 millions et demi (voir le Tableau 1).

(1) Dans cet article, à moins d'indication contraire, le terme "population" signifie toujours la population non-institutionnelle âgée de 14 ans et plus.

TABLEAU 1. Moyennes annuelles, variations annuelles et taux annuel de croissance de la population, de la population active et du taux d'activité, Canada, 1953-71

Années	Moyennes annuelles			Variation annuelle des moyennes annuelles			Taux annuel de croissance	
	Popula- tion	Population active	Taux d'activité	Popula- tion	Population active	Taux d'activité	Popula- tion	Population active
	'000		%	'000		%	pourcentage par année	
1953	10,164	5,397	53.1					
1954	10,391	5,493	52.9	227	96	-.2	2.2	1.8
1955	10,597	5,610	52.9	206	117	.0	2.0	2.1
1956	10,807	5,782	53.5	210	172	.6	2.0	3.1
1957	11,123	6,008	54.0	316	226	.5	2.9	3.9
1958	11,388	6,137	53.9	265	129	-.1	2.4	2.1
1959	11,605	6,242	53.8	217	105	-.1	1.9	1.7
1960	11,831	6,411	54.2	226	169	.4	1.9	2.7
1961	12,053	6,521	54.1	222	110	-.1	1.9	1.7
1962	12,280	6,615	53.9	227	94	-.2	1.9	1.4
1963	12,536	6,748	53.8	256	133	-.1	2.1	2.0
1964	12,817	6,933	54.1	281	185	.3	2.2	2.7
1965	13,128	7,141	54.4	311	208	.3	2.4	3.0
1966	13,475	7,420	55.1	347	279	.7	2.6	3.9
1967	13,874	7,694	55.5	399	274	.4	3.0	3.7
1968	14,264	7,919	55.5	390	225	.0	2.8	2.9
1969	14,638	8,162	55.8	374	243	.3	2.6	3.1
1970	15,016	8,374	55.8	378	212	.0	2.6	2.6
1971	15,388	8,631	56.1	372	257	.3	2.5	3.1

La population et la population active ont toutes les deux connu une tendance continue à la hausse; cependant, le taux de croissance n'était pas constant, tel que les variations des pentes et les mouvements ondulatoires de ces séries le montrent dans la partie (a) du graphique 1.

Pour certains problèmes analytiques, les variations elles-mêmes, à la fois en chiffres réels et en pourcentages, sont plus révélatrices que l'ensemble; elles sont donc présentées dans les parties b et c du graphique 1. L'étroite relation entre les deux séries, à la fois dans les changements réels annuels et dans les taux de croissance, indique qu'une grande partie de la croissance de la population active a été causée par la croissance de la population elle-même. Cependant, la concordance entre les deux séries n'est pas toujours parfaite. Certaines années, la croissance de la population active ne correspond pas à celle de la population — l'année 1960 est un cas frappant. Bien que les taux de croissance aient généralement obéi à la même tendance, la population active augmentait presque à chaque année à un rythme plus rapide que la population; le contraire ne s'est produit que très rarement — plus particulièrement entre 1958 et 1963. La croissance de la population n'était donc pas la seule responsable des variations de la population active.

Pour obtenir une relation exacte entre la population active et la population, il faut se référer au taux d'activité, soit la population active exprimée en pourcentage de la population. Bien que la population active ne constitue pas un groupe fixe de personnes — le nombre mensuel d'entrées et de sorties dans la population active étant considérable — le rapport entre celle-ci et la population peut être stable, en quel cas le taux d'activité demeure relativement constant. Au cours de la période 1953-71, le taux d'activité est passé de 53.1% à 56.1%, un changement de 3% sur une période de 18 ans (voir le Tableau 1). Parallèlement aux variations enregistrées dans les taux de changement de la population et de la population active, les variations du taux d'activité étaient principalement positives au début et à la fin de la période, mais négatives entre 1958 et 1963, toujours à l'exception de l'année 1960.

Pour étayer davantage, l'augmentation moyenne annuelle de la population était de 290,000 au cours de toute la période et de 375,000 au cours des six dernières années. Un sommet a été atteint en 1967, lorsqu'une addition de presque 400,000 personnes représentait un accroissement de 3%. Par la suite, l'augmentation annuelle s'est ralentie et en 1971 la population canadienne s'élargissait au rythme de 2.5%.

Cette augmentation de la population n'était pas répartie également entre les différents groupes d'âge-sexe ni entre les années (voir les graphiques 2 à 7). L'influence des nombreuses naissances de la période d'après-guerre est facilement repérable dans les données. Cette explosion démographique a été ressentie lorsque ces enfants devinrent en âge de travailler. Le groupe des 14 à 19 ans augmenta de 401,000 entre 1961 et 1965. Les répercussions sur le groupe d'âge suivant se fit au cours des années 1965-69; les 20 à 24 ans connurent leur taux de croissance maximum (7.2 %) en 1967.

Une seconde influence importante fut l'arrivée massive d'immigrants au cours des années 1956-57 et 1965-67. Ces vagues d'immigration étaient constituées surtout d'hommes âgés de 20 à 44 ans. Ainsi si le groupe des hommes âgés de 25 à 44 ans a effectivement diminué de 2,000 personnes entre 1961 et 1962, il a augmenté de 152,000 entre 1966 et 1968. Au moment où l'augmentation due à l'immigration s'est ralentie, les enfants de la période d'après-guerre atteignaient l'âge de ce groupe (25 à 44 ans) qui augmentait de 58,000 personnes en 1971.

La façon dont cette distribution inégale de la croissance de la population est absorbée dans la population active dépend grandement de la propension des différents groupes d'âge-sexe à participer à la population active (voir le graphique 8). Les hommes de 25 à 44 ans ont un taux d'activité très élevé (au-dessus de 96 %); un changement dans l'effectif de ce groupe se répercute donc dans sa presque totalité sur la population active. Cependant, l'augmentation dans la population des hommes âgés de 45 ans et plus amène une augmentation correspondante de seulement 75 % du nombre des actifs de ce groupe en 1953.

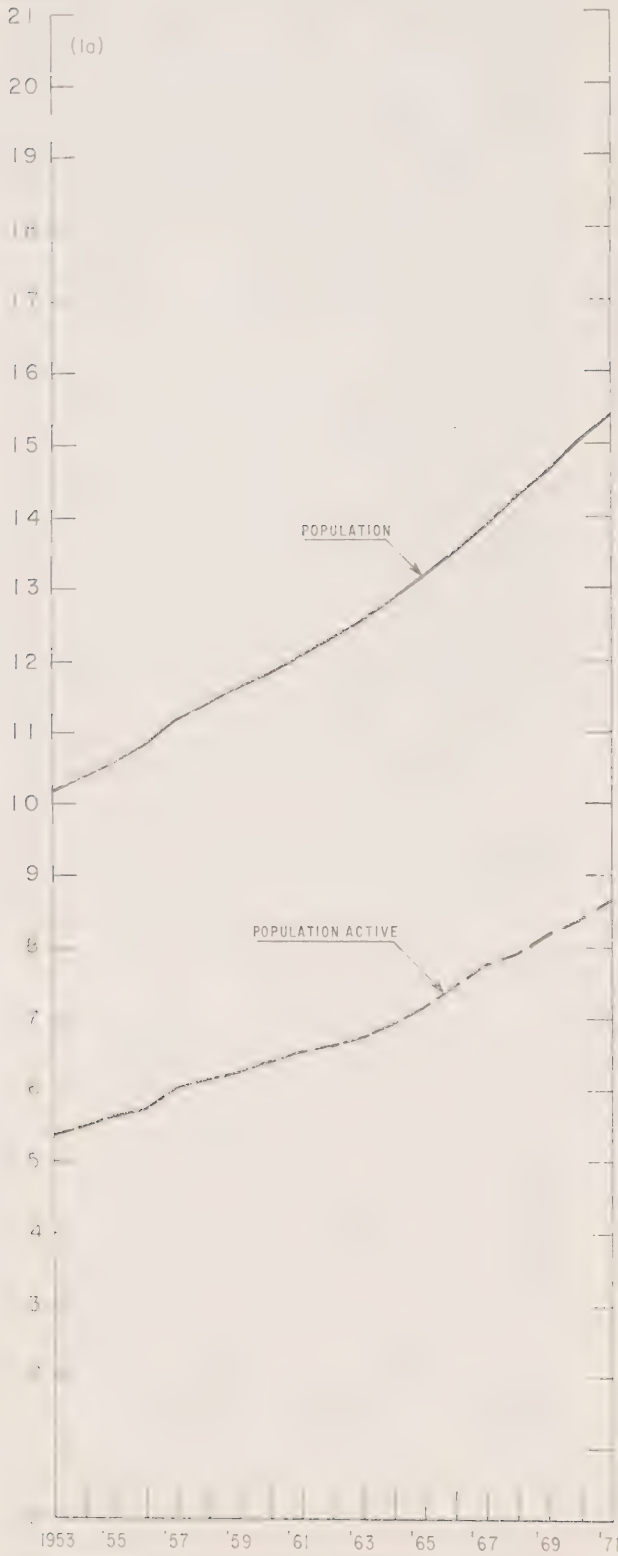
Le taux d'activité des hommes a légèrement diminué entre 1953 et 1971, mais le taux d'activité des femmes a considérablement augmenté. Aussi, des augmentations similaires de la population féminine se sont intégrées dans la population active à des degrés sensiblement différents suivant l'époque où sont survenues ces augmentations. En 1953, chaque augmentation d'un millier du groupe des femmes âgées de 25 à 44 ans apportait 241 femmes de plus à la population active, alors que la même augmentation en 1971 en donnait 409. Une même augmentation de la population, mais cette fois, des femmes âgées de 45 ans et plus, a entraîné un changement de 131 dans la population active de 1953, et de 271 dans celle de 1971.

Dans certains groupes, le taux d'activité est en régression. C'est particulièrement le cas des jeunes de 14 à 19 ans. L'énorme augmentation des inscriptions scolaires des

POPULATION ET POPULATION ACTIVE AU CANADA, 1953-1971

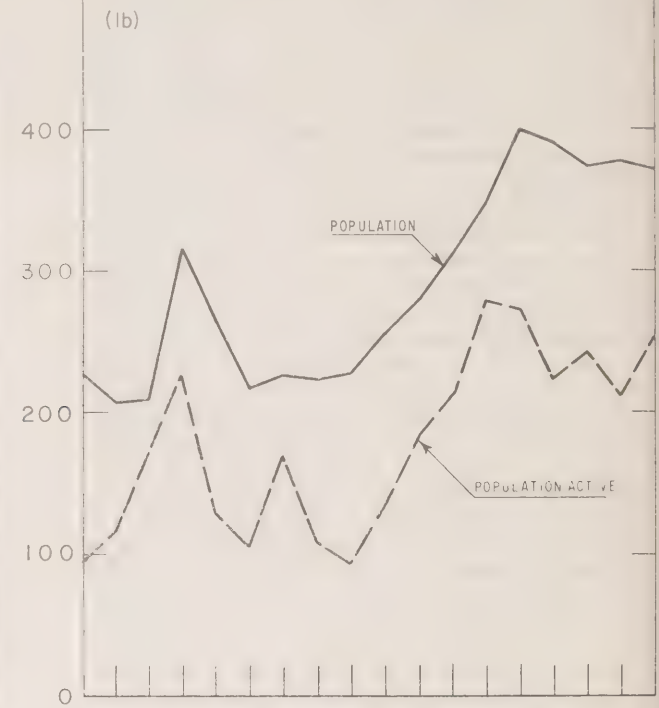
MOYENNES ANNUELLES

MILLIONS



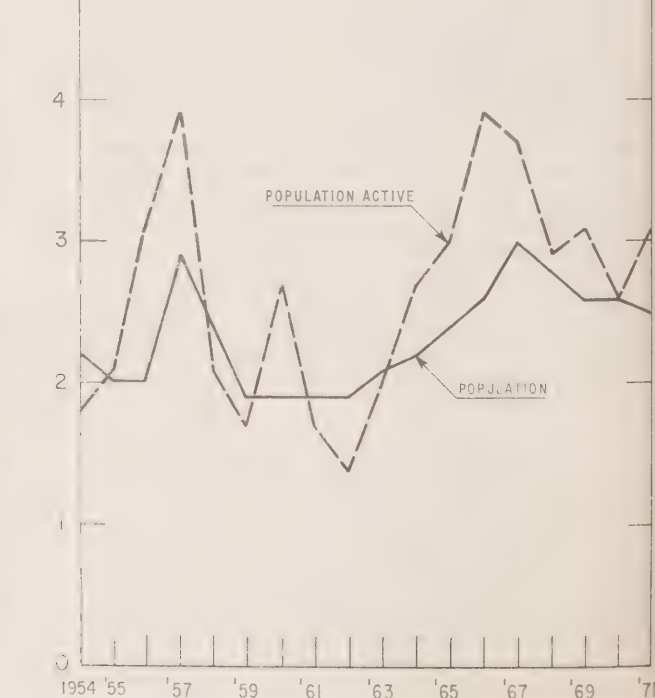
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(CALCULÉS D'APRÈS LES MOYENNES ANNUELLES)

EN MILLIERS

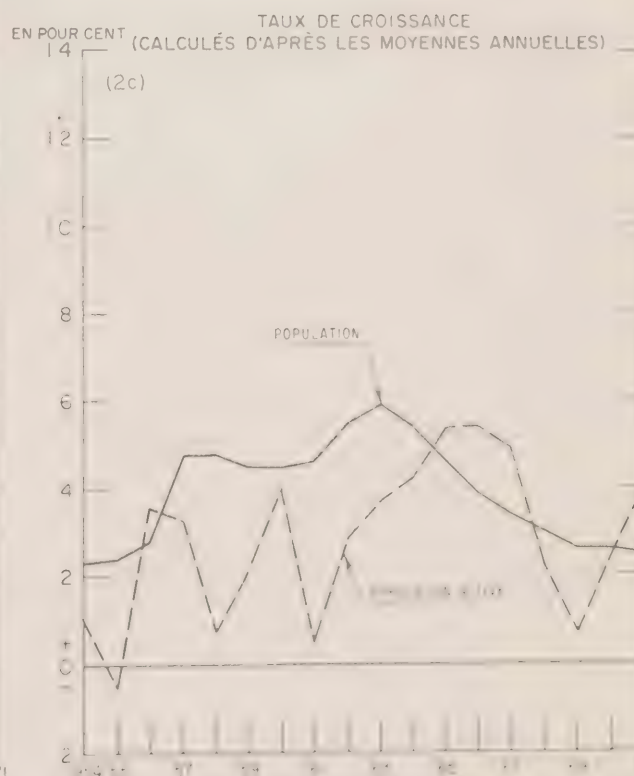
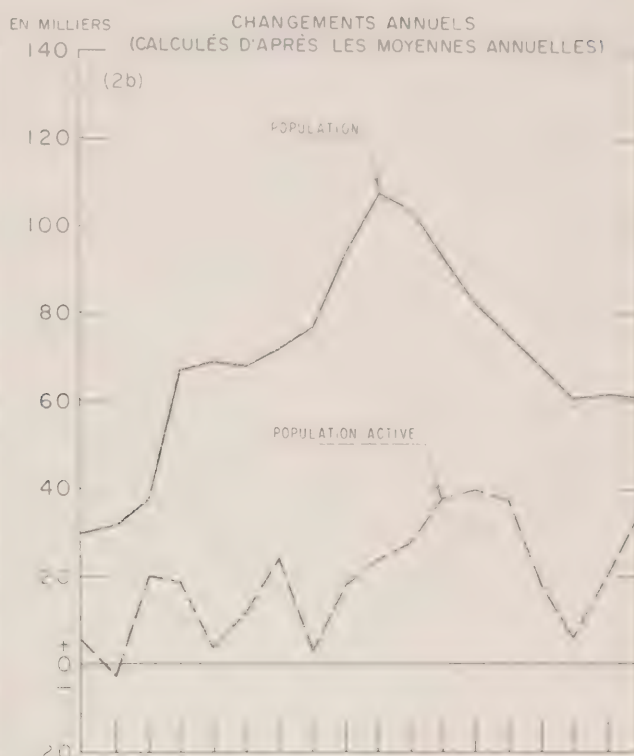
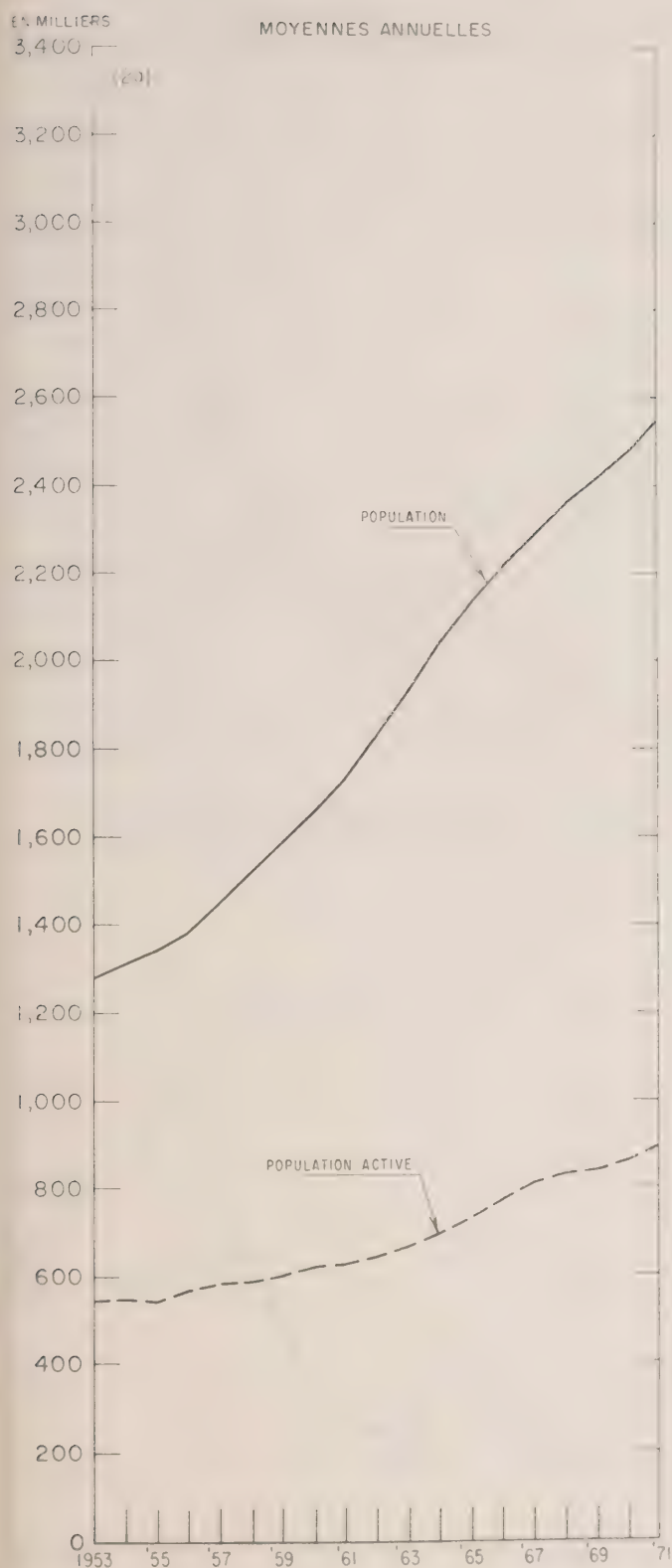


TAUX DE CROISSANCE
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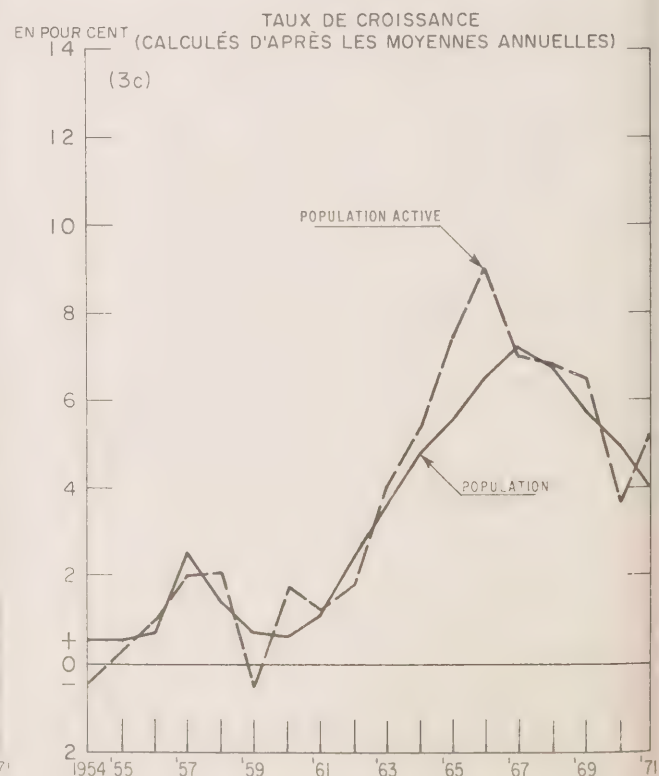
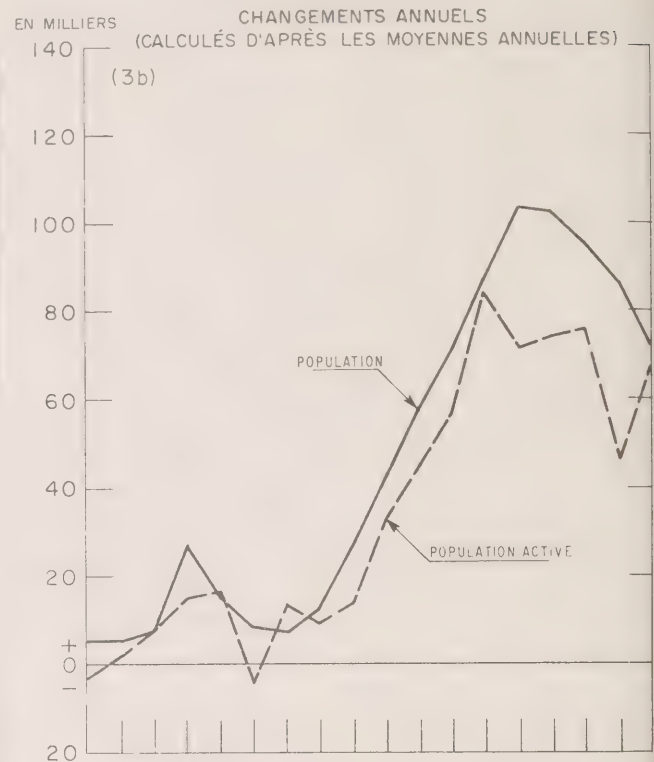
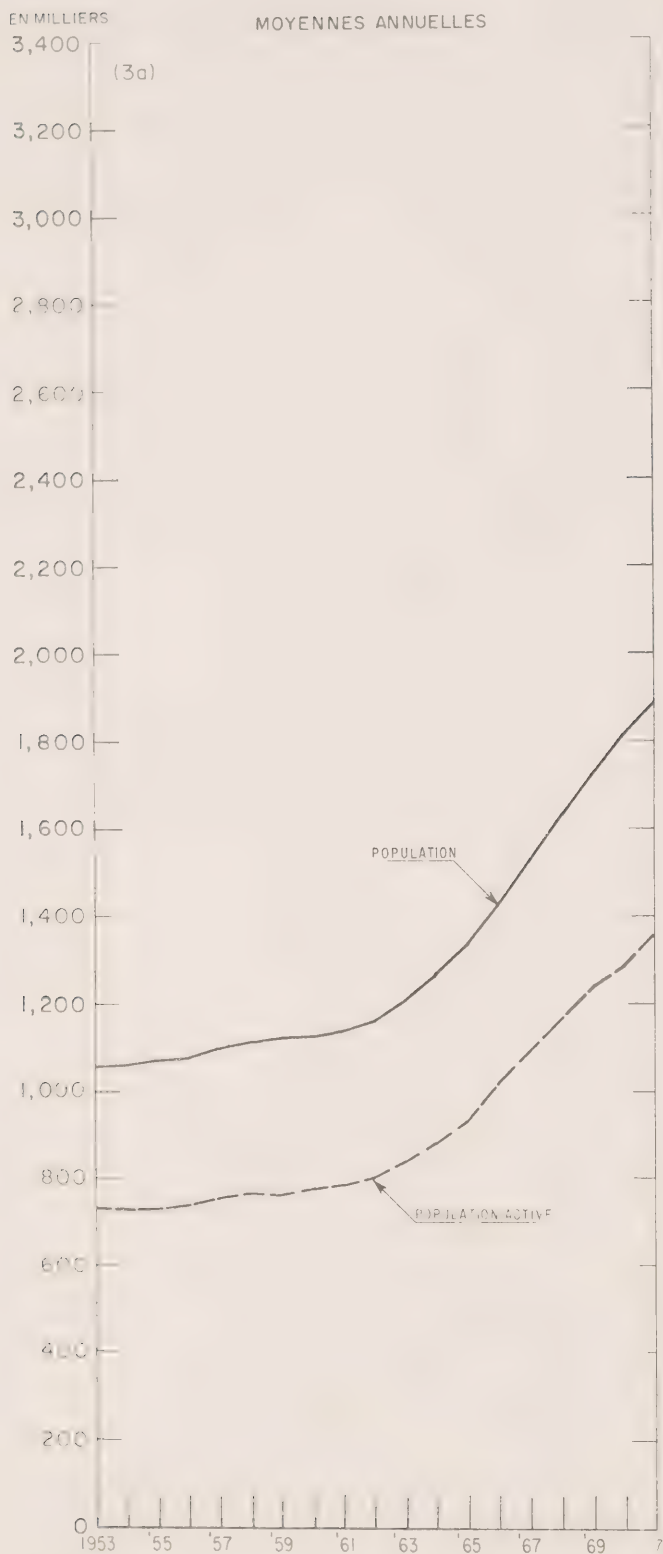
EN POURCENT



POPULATION ET POPULATION ACTIVE DES HOMMES ET FEMMES DE 14 À 19 ANS, CANADA, 1953-1971

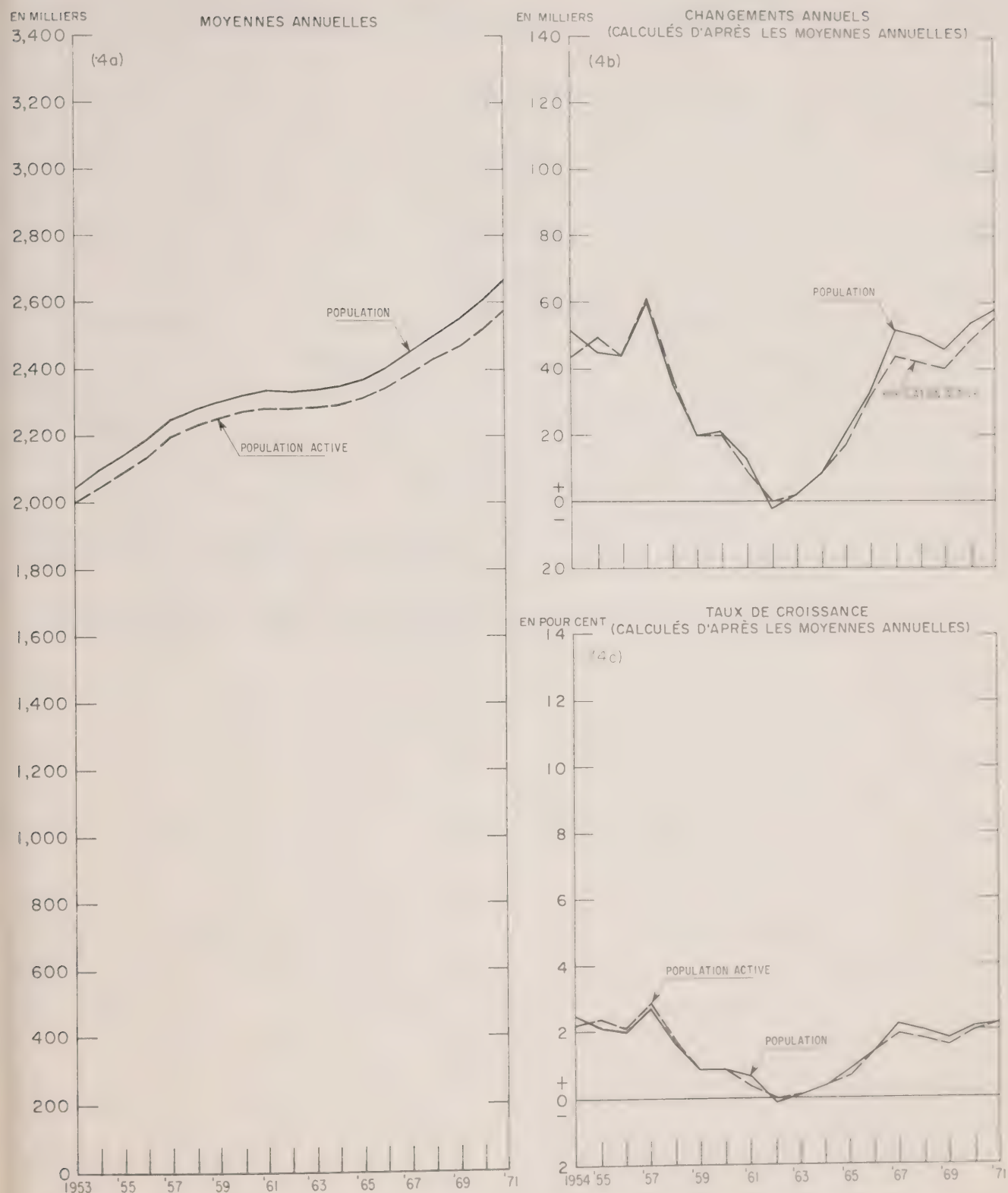


POPULATION ET POPULATION ACTIVE DES HOMMES ET FEMMES DE 20 À 24 ANS, CANADA, 1953-1971



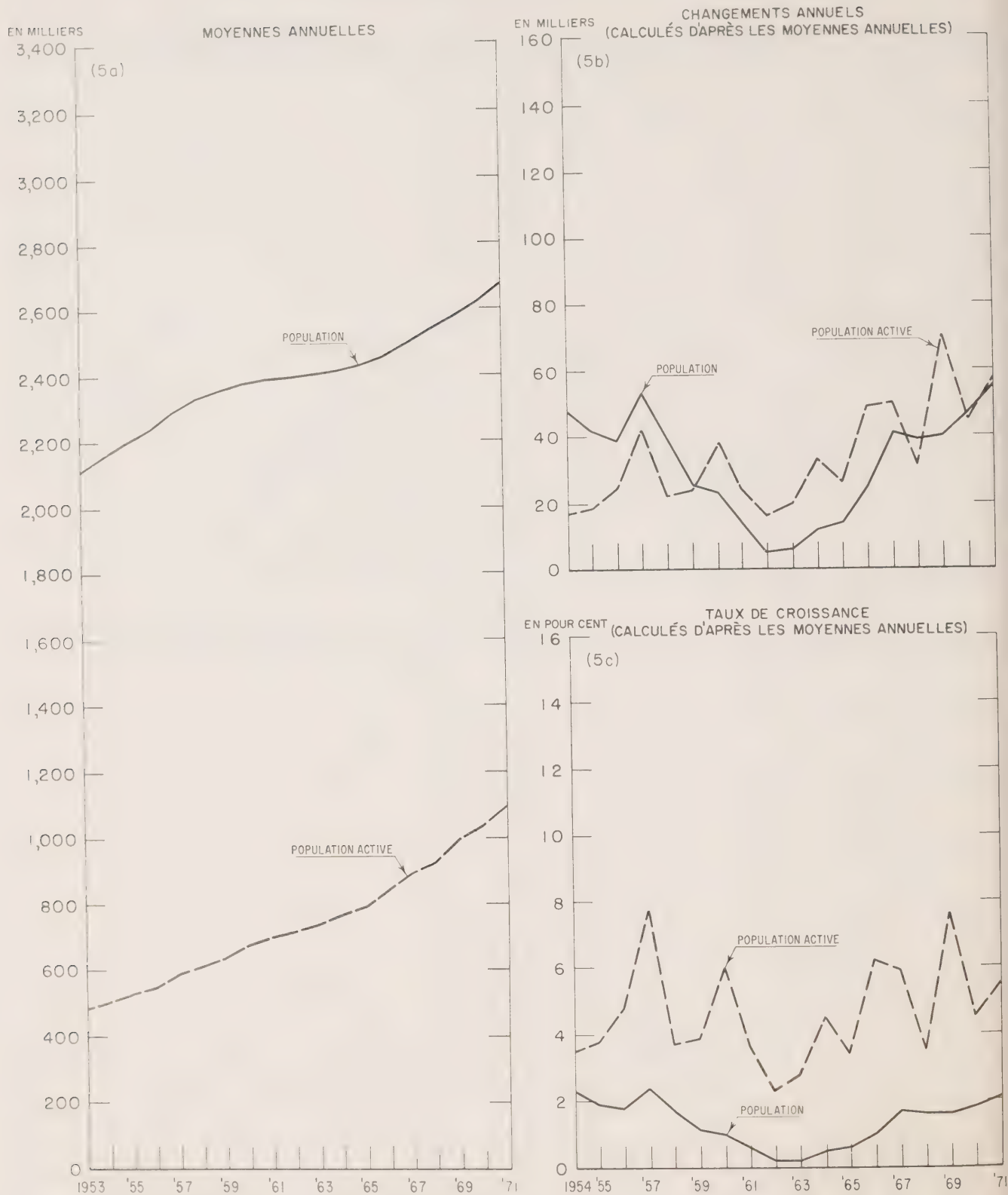
SOURCE: TABLEAUX SPÉCIAUX, SECTION DES ENQUÊTES SUR LA MAIN-D'OEUVRE.

POPULATION ET POPULATION ACTIVE DES HOMMES DE 25 À 44 ANS, CANADA, 1953-1971

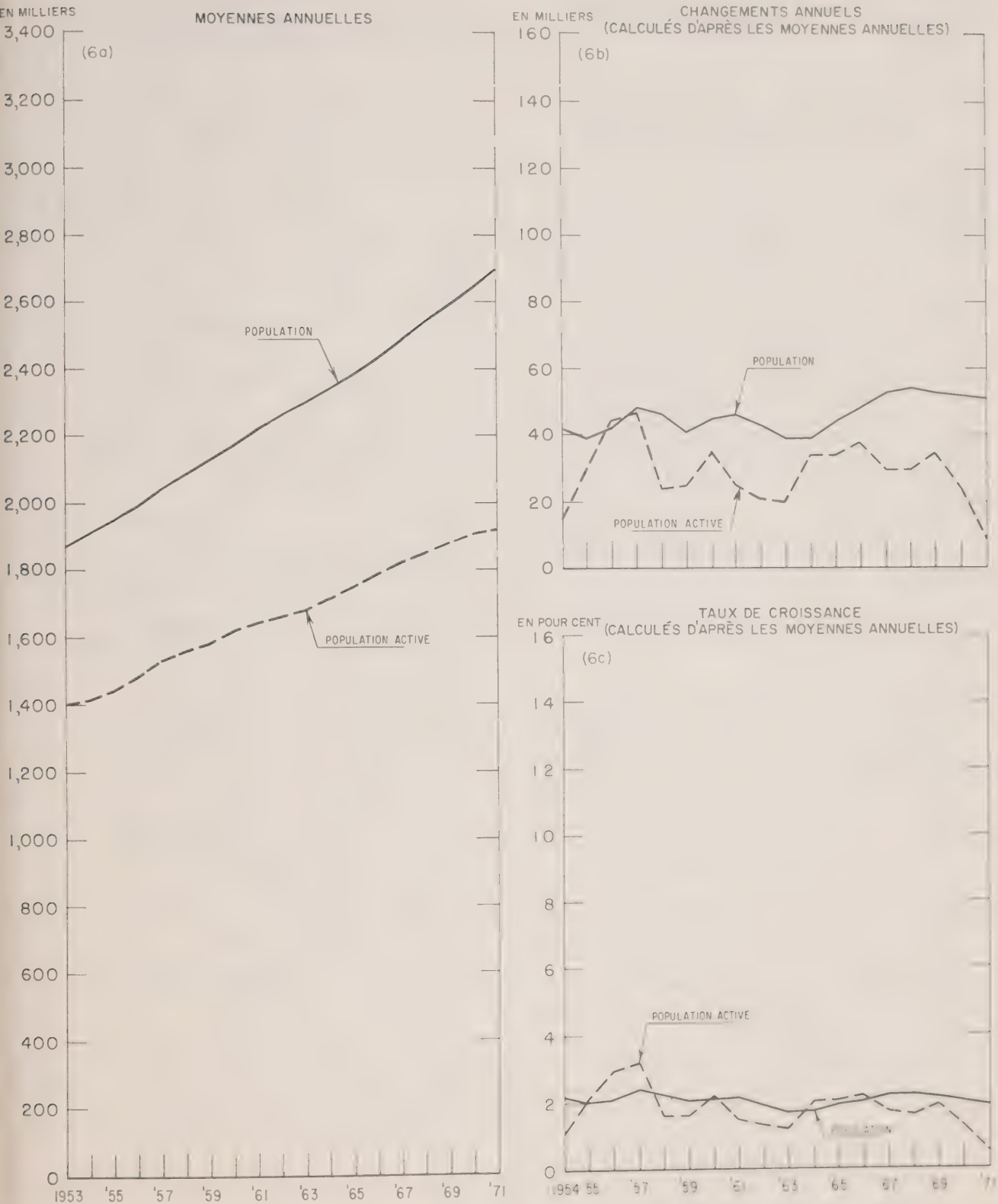


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POPULATION ET POPULATION ACTIVE DES FEMMES DE 25 À 44 ANS, CANADA, 1953-1971

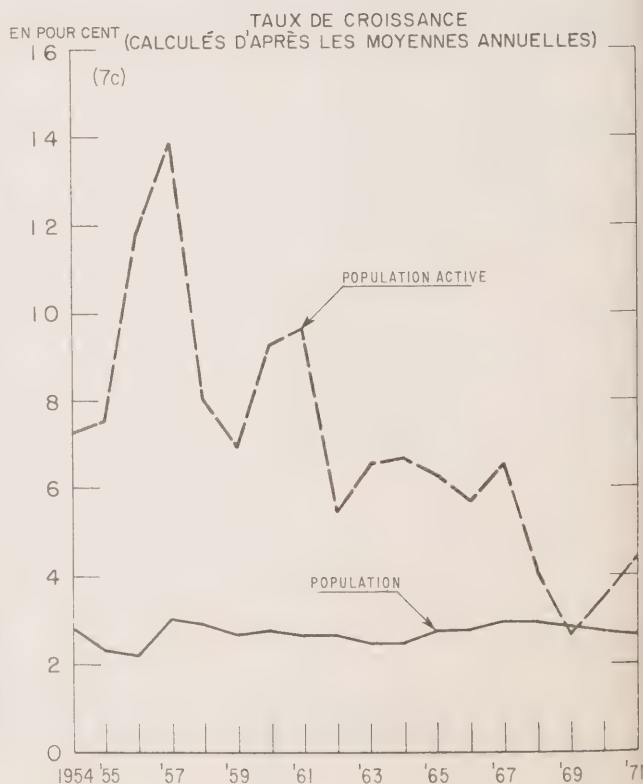
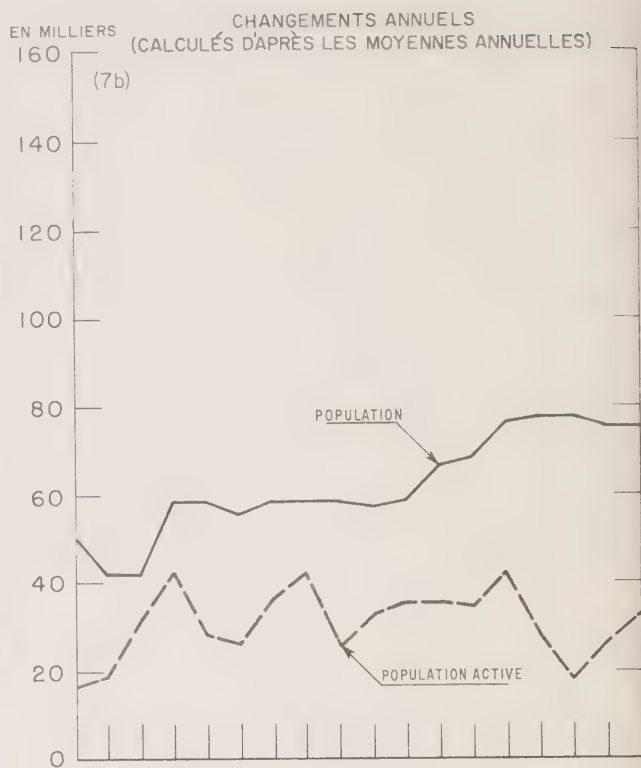
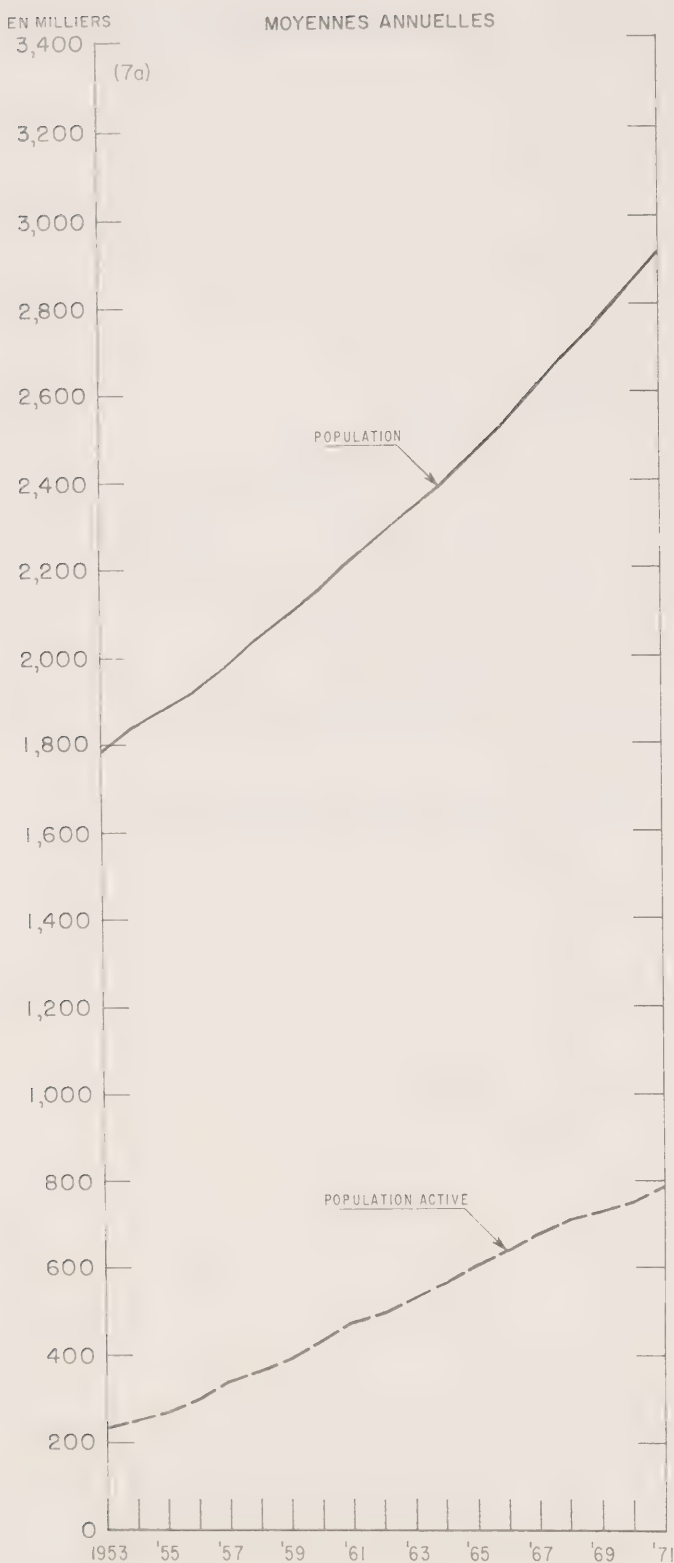


POPULATION ET POPULATION ACTIVE DES HOMMES
DE 45 ANS ET PLUS, CANADA, 1953-1971



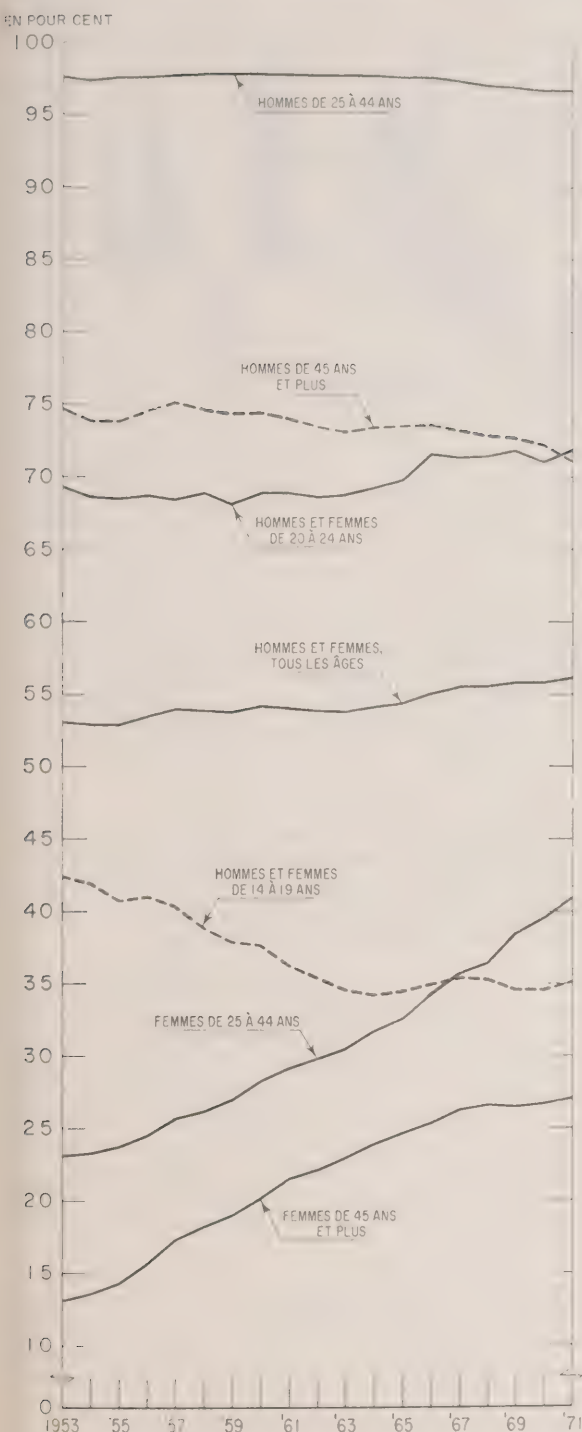
SOURCE: TABLEAUX SPÉCIAUX, SECTION DES ENQUÊTES SUR LA MAIN-D'OEUVRE

POPULATION ET POPULATION ACTIVE DES FEMMES DE 45 ANS ET PLUS, CANADA, 1953-1971



GRAPHIQUE-8

TAUX D'ACTIVITÉ SELON L'ÂGE
ET LE SEXE, CANADA,
1953-1971
(MOYENNES ANNUELLES)



SOURCE TABLEAUX SPÉCIAUX, SECTION DES ENQUÊTES
SUR LA MAIN-D'ŒUVRE

garçons et des filles de ce groupe d'âge a eu un effet direct sur leur taux d'activité. En 1953, seulement 42 % de l'accroissement de la population de ce groupe passait à la population active, et en 1971, 35 %.

Contributions distinctes de la population et des taux d'activité à la population active au niveau global

Dans le graphique 9, les changements annuels de la population active ont été séparés pour montrer la partie de ces changements entraînée par l'accroissement de la population et celle due aux variations du taux d'activité.(2)

Le premier facteur — l'accroissement de la population — a amené environ 100,000 personnes par an à la population active dans les années 50 et au début des années 60; en 1957 et au cours du premier semestre de 1958 toutefois, l'immigration multiplia par un et demi l'impact du facteur population. Depuis 1967, l'accroissement de la population a apporté environ 200,000 personnes par an à la population active. L'effet du taux d'activité a été plus spasmodique. Il a quelquefois renforcé l'impact de la population (e.g., 1956-57, 1960 et 1963-68) et en d'autres occasions, il a agi en sens inverse (1954, fin 1958 et début 1959, la plupart du temps entre 1961-63). Au cours des quatre dernières années, bien que l'effet a varié entre le positif et le négatif, l'aspect positif a été plus en évidence.

Cette plus grande instabilité de l'impact du taux d'activité est remarquable. Une des principales raisons est que le mouvement global n'enregistre que le résultat net de changements dans différentes directions pour

(2) Les résultats sont dérivés des équations suivantes:

$$PA_0 = Pop_0 \cdot TA_0$$

$$PA_1 = Pop_1 \cdot TA_1$$

$$\text{et } PA_1 = PA_0 + \Delta PA$$

où: PA = Population active
Pop = Population
TA = Taux d'activité

$$\text{donc } Pop_1 \cdot TA_1 = PA_0 + \Delta PA,$$

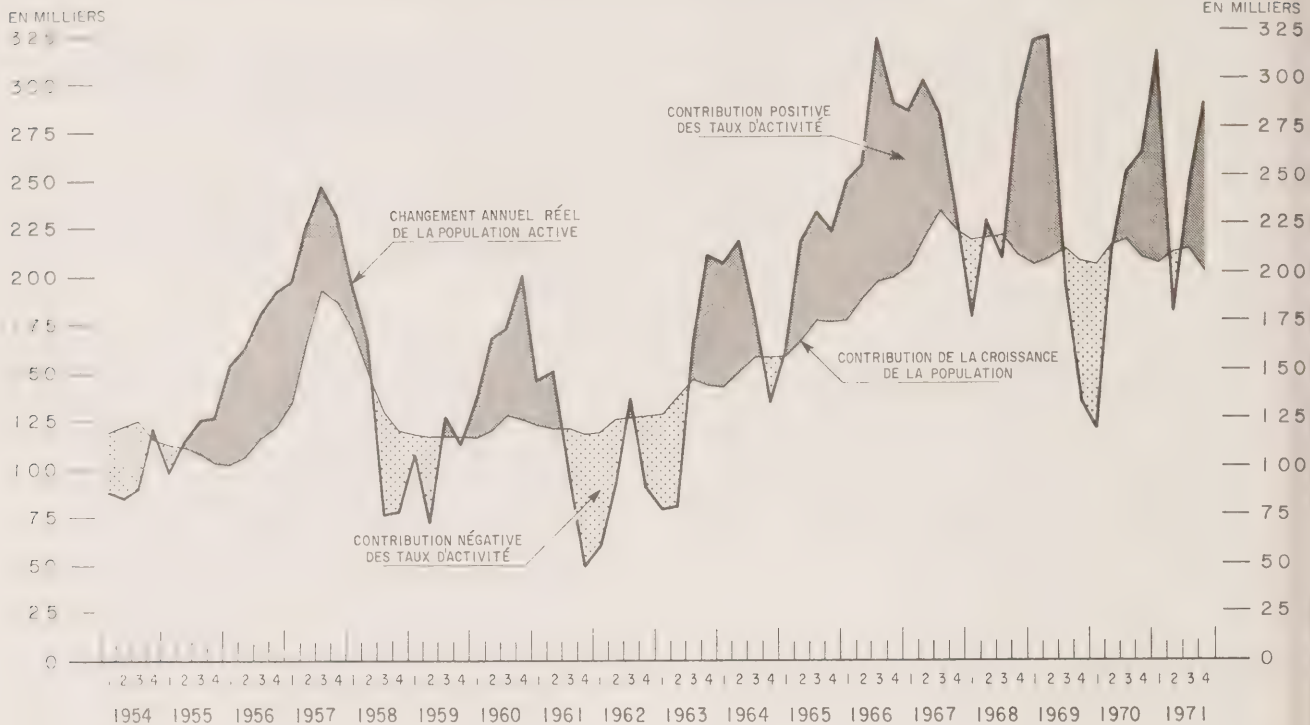
$$(Pop_0 + \Delta Pop) (TA_0 + \Delta TA) = PA_0 + \Delta PA,$$

dans l'hypothèse où le terme du second degré est petit,

$$\Delta PA = Pop_0 (\Delta TA) + TA_0 (\Delta Pop)$$

GRAPHIQUE -9

CONTRIBUTIONS DE LA CROISSANCE DE LA POPULATION ET DE L'ÉVOLUTION
DES TAUX D'ACTIVITÉ AU CHANGEMENT ANNUEL DE LA POPULATION ACTIVE,
DONNÉES TRIMESTRIELLES, CANADA, 1954-1971



les divers groupes d'âge-sexe. Ces changements ont en outre considérablement modifié la structure de la population active. Cette transformation de la composition de la population active, dont nous allons maintenant traiter, est elle-même responsable en partie de la différence enregistrée au niveau global.

Évolution de la structure de la population active

Premièrement, le rapport de féminité dans la population active a fortement changé dans tous les groupes d'âge. La proportion de femmes par rapport aux hommes dans la population active totale est passée de 0.28 en 1953 à 0.49 en 1971, soit une augmentation de 0.21 (voir le graphique 10). Cette augmentation était inégalement répartie entre les groupes d'âge, en partie parce que dans certains groupes le déséquilibre entre les hommes et les femmes était moins marqué au début de la période. Ainsi, dans le groupe d'âge 14-19, l'augmentation (de 0.64 à 0.76) était relativement modeste. Le rapport de féminité dans le groupe d'âge 20-24 est passé de 0.54 à 0.70, soit une augmentation de 0.16. La

progression la plus importante a été constatée dans le groupe des femmes de 45 ans et plus — soit une augmentation de 0.25 point, suivie de près par celle du groupe d'âge 25-44, une augmentation de 0.18 point.

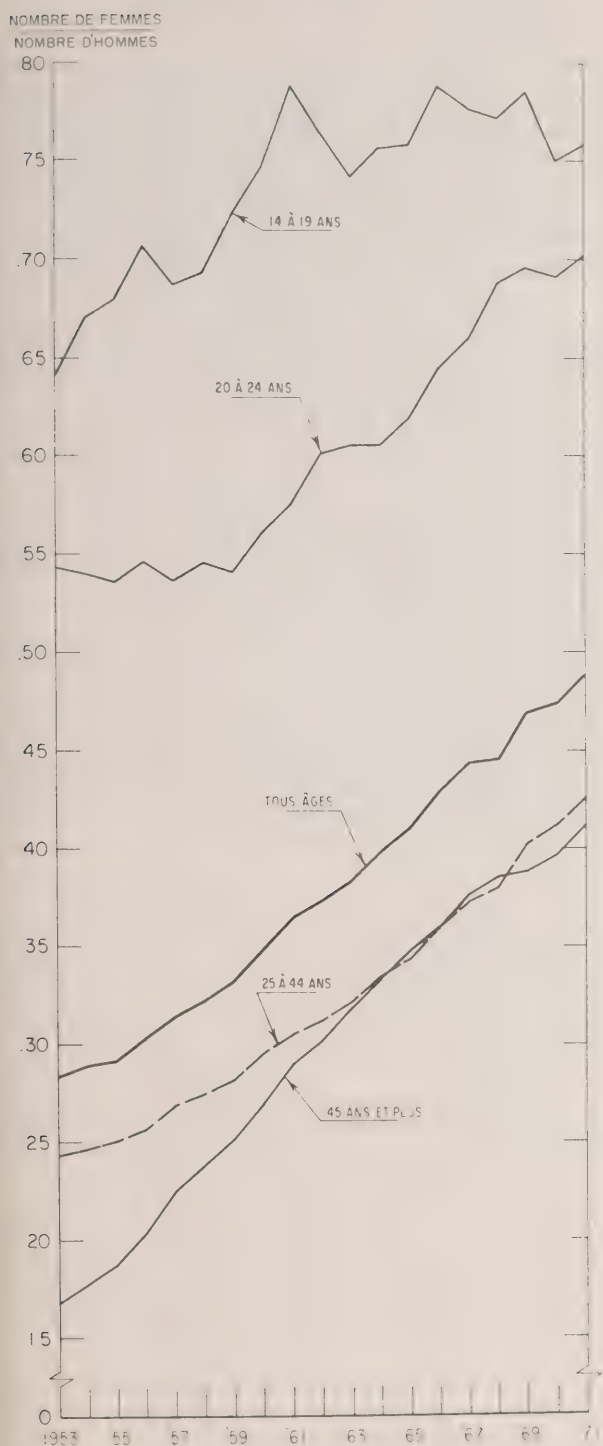
Pour l'ensemble de la période, le rapport de féminité de la population active totale a changé en faveur des femmes au rythme annuel moyen de 0.11, soit 0.06 pour le groupe 14-19, 0.09 pour le groupe 20-24, 0.10 pour le groupe 25-44 et 0.14 pour les personnes âgées de 45 ans et plus. C'est donc dire que les gains du rapport de féminité sont reliés à l'âge moyen du groupe: plus le groupe est âgé, plus les gains sont prononcés.

La structure d'âge de la population active s'est également considérablement transformée (voir le graphique 11). La cause peut être une modification dans la structure d'âge de la population sur laquelle la population active repose ou une modification dans la structure d'activité des groupes d'âge, ou une combinaison de ces deux phénomènes.

La courbe de l'âge médian de la population active masculine suit le tracé établi

GRAPHIQUE-10

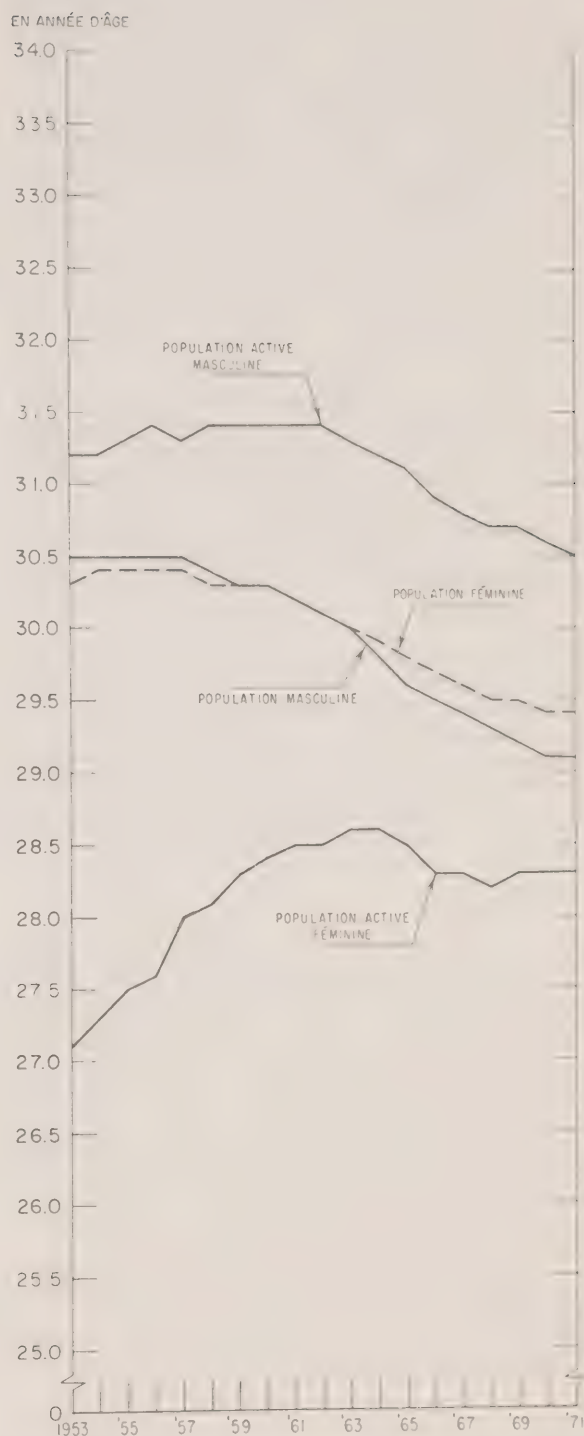
RAPPORTS DE FÉMINITÉ DE LA POPULATION
ACTIVE SELON LES GROUPES D'ÂGE,
CANADA, 1953-1971



SOURCE: DONNÉES CALCULÉES À PARTIR DES TABLEAUX SPÉCIAUX,
SECTION DES ENQUÊTES SUR LA MAIN-D'ŒUVRE

GRAPHIQUE-11

ÂGE MÉDIAN DE LA POPULATION ET DE LA
POPULATION ACTIVE SELON LE SEXE,
CANADA, 1953-1971



SOURCE: DONNÉES CALCULÉES À PARTIR DES TABLEAUX SPÉCIAUX,
SECTION DES ENQUÊTES SUR LA MAIN-D'ŒUVRE

par l'âge médian de la population masculine. La population active masculine est plus âgée que la population correspondante en raison du grand nombre de jeunes qui fréquentent l'école. Les inscriptions scolaires ayant augmentées au cours de la période, l'âge médian de la population active masculine fut plus stable que l'âge médian de la population masculine qui, lui, a plus fortement subi les effets du grand nombre de naissances enregistrées dans la période d'après-guerre. En 1953, cette population active était plus vieille de 0.7 année que la population, alors qu'en 1971 la différence était de 1.4. Dans un laps de temps de 20 ans, l'âge médian de la population active a baissé de 0.7 année, celui de la population de 1.4.

La courbe de l'âge médian de la population féminine est à peu près identique à celle de la population masculine; cependant, leur courbe respective de population active est différente en plusieurs points. Tout d'abord, la population active féminine est beaucoup plus jeune que la population féminine, tout particulièrement durant les premières années de la période. Deuxièmement, le profil de la courbe de la population active féminine n'a guère de points communs avec celle de la population féminine. Cette dissemblance était prévisible puisque le rapport de féminité de la population active a augmenté avec l'âge, alors que l'on connaît la stabilité du rapport de féminité de la population. Les deux courbes ont suivi des directions différentes dans le temps. La population s'est rajeunie de 0.9 an, tandis que la population active a

vieilli de 1.2 an. L'écart considérable entre les deux médianes a donc été fortement réduit; alors qu'en 1953 la population active était de 3.2 années plus jeune que la population, en 1971 la différence n'était plus que de 0.9 année.

En bref, la structure d'âge de la population active des hommes a été principalement modifiée par des changements dans la population, le plus grand nombre d'inscriptions scolaires se faisant toutefois sentir, tandis que dans le cas des femmes, des changements dans les propensions à entrer dans la population active ont joué un rôle primordial.

La différence entre les structures d'âge de la population active masculine et féminine est plus détaillée au Tableau 2. En 1971, 33.3 % de la population active féminine faisait partie du groupe d'âge 14-24 ans (22.5 % pour les hommes), et 27.9 % de celui des personnes âgées de 45 ans et plus (33.1 % pour les hommes). Au cours de l'ensemble de la période, le pourcentage de femmes dans le groupe d'âge plus jeune a baissé, tandis que celui des hommes a augmenté (-6.2 % et +3.4 % respectivement). Le pourcentage de femmes dans le groupe des plus âgées a augmenté (+8.3 % tandis que dans le même groupe chez les hommes, il est resté stable (-0.2 %). Il y a donc eu une modification dans la répartition de la population active entre les femmes plus jeunes et plus âgées; cependant, la population active féminine dans son ensemble est restée beaucoup plus jeune que la population active masculine.

TABLEAU 2. Répartition de la population active en pourcentage selon l'âge, hommes et femmes, certaines années, Canada

(basée sur les moyennes annuelles)

Sexe et âge	1953	1958	1963	1968	1970	1971
Hommes:						
14 ans et plus	100.0	100.0	100.0	100.0	100.0	100.0
14-24	19.1	18.2	18.5	21.3	22.0	22.5
25-44	47.6	48.2	46.9	44.7	44.4	44.4
45 ans et plus	33.3	33.6	34.6	34.0	33.6	33.1
Femmes:						
14 ans et plus	100.0	100.0	100.0	100.0	100.0	100.0
14-24	39.5	34.3	32.1	33.8	33.3	33.3
25-44	40.9	40.9	39.3	37.3	38.6	38.7
45 ans et plus	19.6	24.9	28.7	28.8	28.2	27.9

Changements dans les taux d'activité et leurs causes

Les taux d'activité sont fonction de l'âge et du sexe; certains taux d'activité ont toutefois subi d'importantes transformations (voir le graphique 12). Ces transformations se différencient à la fois quant à la direction et à l'importance de leur mouvement. Le niveau supérieur et positif de variation des taux d'activité des femmes plus âgées est une preuve que surtout ces groupes sont responsables de la contribution des taux d'activité à l'accroissement de la population active au cours des 20 dernières années. Il est également intéressant de noter les changements négatifs aux extrémités des courbes du taux d'activité des jeunes et des hommes. Ce sont là des facteurs qui compensent l'accroissement de la population active féminine.

Quelles explications ont ces nombreux changements contradictoires dans les taux d'activité? Et pourquoi le taux d'activité général était-il plus haut en 1971 qu'au début des années 50? Au niveau des individus, la réponse met en jeu une gamme fort étendue de variables modifiant les décisions d'entrer, de ne pas entrer, ou de rester dans la population active — ce genre de recherche se situe bien au-delà de l'objectif de cet article. Cependant, une revue des causes principales peut être réalisée au niveau global, ou il existe deux classes principales de variables altérant le degré d'activité dans la population active.

La première classe de variables regroupe ce que l'on peut qualifier de variables démographiques. La répartition de la population par âge et par sexe appartient à cette classe, ainsi que la répartition urbaine et rurale, le taux de natalité de la cohorte féminine, les tables de nuptialité, etc. La baisse du taux de natalité qui réduit les responsabilités des femmes comme maîtresses de maison en est une illustration évidente; ce phénomène augmente à court terme la tendance à entrer dans la population active, mais un autre effet peut se faire sentir à long terme, puisqu'une réduction de la jeune population et une augmentation de la proportion de personnes plus âgées peut se produire. Une diminution de la proportion de la population agricole dans la population totale entraîne une augmentation du pourcentage de femmes dans la population active. Le second groupe de variables agissant sur les taux d'activité provient de l'environnement institutionnel, des coutumes et des échelles de valeurs de la société, etc. Sont inclus dans cette classe: la durée des études, l'attitude concernant l'âge de la retraite

et l'emploi des femmes, et les autres phénomènes connexes. En général, les coutumes changent lentement et tendent à avoir un effet stabilisateur.

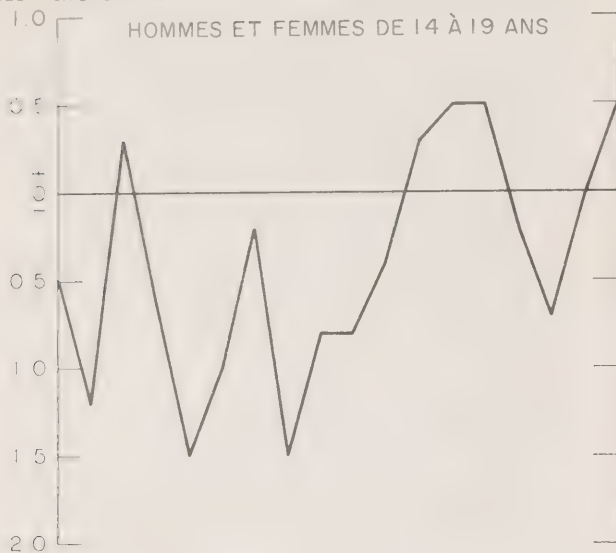
Il existe encore un autre type d'influence sur le niveau d'activité. La population active constitue le point de contact par excellence entre les secteurs économique et démographique et, bien que le but de cet article ne soit pas l'étude de l'effet des conditions économiques sur la population active(3), il faut souligner qu'il semble y avoir là un certain rapport. Deux grandes théories ont vu jour à cet effet. La première connue sous le nom "effet du travailleur d'appoint" se présente comme suit: à mesure que les conditions économiques se détériorent et que de plus en plus de chefs de famille deviennent chômeurs, des travailleurs secondaires entrent dans la population active afin de maintenir le revenu familial. La seconde hypothèse appelée "hypothèse du retrait cyclique" soutient que, considérées les mêmes circonstances, les travailleurs se découragent et se retirent de la population active ou n'y entrent pas.

La sensibilité de divers groupes de la population aux pressions du marché a changé au cours des années. Le groupe des femmes y est maintenant beaucoup plus sensible en raison de divers facteurs dont la baisse de la natalité, la semaine de travail plus courte qui permet plus facilement aux femmes mariées de travailler, une formation maintenant plus poussée, le mouvement vers les régions urbaines qui offrent de plus grandes possibilités d'emplois, et l'augmentation relative des emplois dans le domaine des services par rapport aux emplois pour cols bleus. Bien que l'augmentation du revenu des époux ait probablement agi comme un effet préventif à l'entrée des femmes sur le marché, il est également probable que l'augmentation des aspirations de la famille ait été plus importante. Pour les jeunes, le prolongement des années d'études a eu tendance à diminuer leur activité dans la population active. D'autre part, chez les plus âgés, la généralisation des régimes de pensions de retraite et l'amélioration de la sécurité sociale, ainsi que le glissement des emplois agricoles, où prédominent des travailleurs indépendants, vers les secteurs non agricoles où la dépendance envers les autres pour un emploi est plus forte, ont renforcé la tendance à une retraite anticipée.

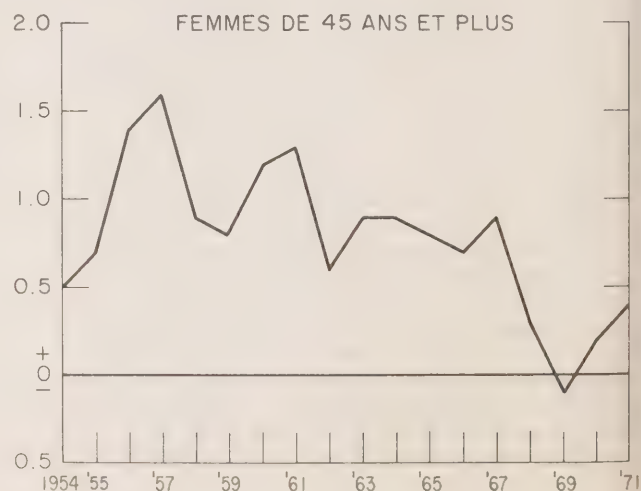
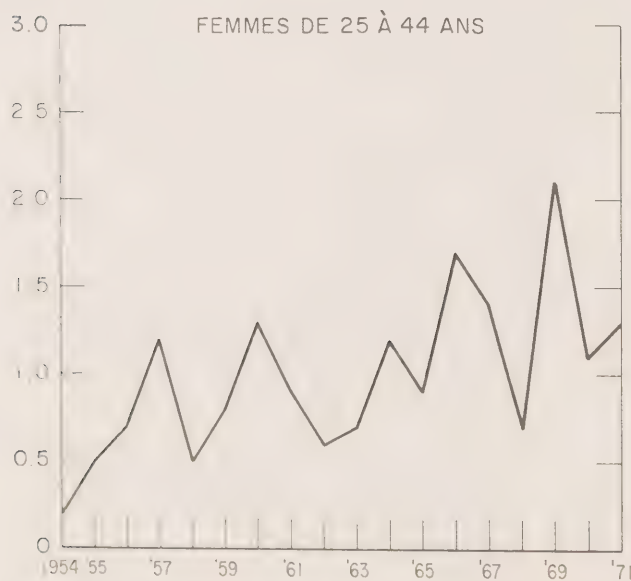
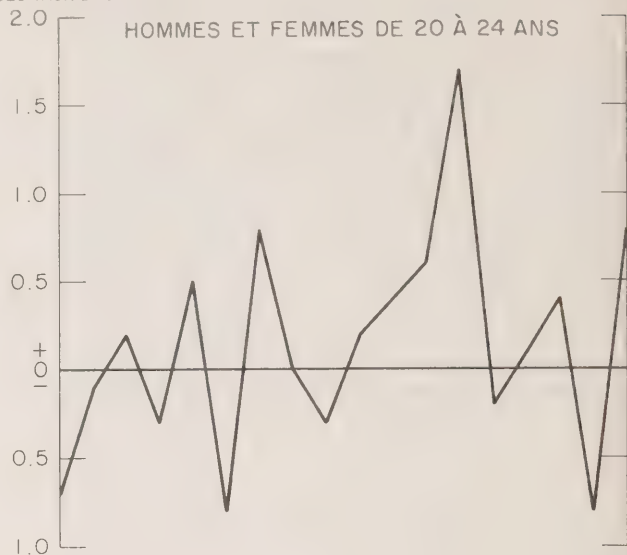
(3) Voir: "Youth Participation in the Labour Force: 1953-70", Notes on Labour Statistics, 1971, Statistique Canada (Catalogue 72-207 Annuel) (Ottawa: Information Canada).

VARIATION ANNUELLE DES TAUX D'ACTIVITÉ SELON LES GROUPES D'ÂGE ET LE SEXE, CANADA, 1954-1971

VARIATION ANNUELLE
DES TAUX D'ACTIVITÉ



VARIATION ANNUELLE
DES TAUX D'ACTIVITÉ



SOURCE : DONNÉES CALCULÉES À PARTIR DES TABLEAUX SPÉCIAUX, SECTION DES ENQUÊTES SUR LA MAIN-D'ŒUVRE.

Contributions distinctes de la population et du taux d'activité à la population active au niveau des divers groupes d'âge-sexe

La dernière partie de cet article consiste en une étude plus détaillée des effets de l'accroissement de la population et des variations du taux d'activité; les groupes âge-sexe y sont étudiés individuellement (voir les graphiques 13 et 14).

14-19 ans. - Sur une base trimestrielle, les variations de ce groupe au sein de la population active ont été les plus instables de tous les groupes d'âge. Bien que les changements dans la population active aient généralement été positifs, les variations du taux d'activité ont été si fortement négatives en certaines occasions qu'elles ont entraîné une baisse de la population active (zone sombre en-dessous de la ligne zéro). Les taux d'activité ont baissé durant la meilleure partie de la période, mais plus particulièrement avant 1963 lorsque l'inscription scolaire augmentait rapidement. De 1965 à 1968, et à nouveau en 1970 et 1971, le taux d'activité s'est allié à l'impact de la population pour faire augmenter la population active.

20-24 ans. - L'augmentation de la population active était légèrement négative au début de la période, mais a gonflé à plus de 90,000 en 1966 et en 1969. Comme le montre le graphique, une importante partie de la vague d'immigration de 1957 et 1958 était composée de personnes de ce groupe d'âge. La comparaison des données trimestrielles permet de constater que l'immigration ajouta annuellement à cette partie de la population active un minimum de 10,000 et un maximum de 25,000 personnes. L'impact du grand nombre de naissances de la période d'après-guerre sur la croissance de la population active est également clairement illustré.

Excepté au cours des années de forte immigration, la contribution de la population (zone sous la courbe intitulée: contribution de la croissance de la population) à la population active était bien en-dessous de 10,000 avant 1960. En 1967 toutefois, la population aurait fourni 70,000 personnes à la population active si ce n'avait été de l'effet neutralisant du taux d'activité. En 1968, l'impact du boom des naissances de la période d'après-guerre commença à s'atténuer. Ainsi, pour ce groupe, presque toute l'augmentation au sein de la population active peut être attribuée à la croissance de la population, bien que le taux d'activité ait eu un impact positif certaines années. En 1966, les changements du taux d'activité ont ajouté 25,000 personnes à une progression déjà imposante (au-dessus de 60,000) due à la

croissance de la population; la situation se répéta en 1969. Le dernier trimestre de 1970 a enregistré la plus grande augmentation (39,000) due à une modification du taux d'activité pour ce groupe d'âge; cependant, l'augmentation de la population était encore responsable pour la plus grande partie (49,000) de l'augmentation de la population active par rapport au même trimestre de l'année précédente.

Contrairement aux autres groupes, le taux d'activité des 20-24 ans n'a pas suivi une ligne définie. Cette situation est attribuable au fait que les principaux composants ont suivi des tendances différentes: le taux d'activité des femmes a augmenté; celui des hommes travaillant toute l'année a diminué (comme ce fut le cas chez les hommes "dans la force de l'âge") et la tendance du groupe fréquentant l'école demeure imprécise(4).

25-44 ans. - Les hommes dans ce groupe d'âge sont reconnus pour la stabilité de leur participation à la population active. Il s'ensuit que les changements dans la taille de la population active ont presque toujours fait suite à des variations dans la taille de la population; il y a toutefois eu une lente et persistante diminution du taux d'activité qui a légèrement ralenti l'augmentation due à l'accroissement de la population. Depuis 1967, cette population active augmente à un taux annuel de 1.6 % à 2.2 %, soit en moyenne, de 40,000 à 55,000 personnes par an au lieu d'une progression de 46,000 à 58,000 personnes par an si la baisse du taux d'activité ne s'était produite. C'est une répétition de ce qui s'est passé dans les toutes premières années de la période étudiée. L'accroissement enregistré au milieu de la période était très faible et en une occasion (1962), l'augmentation était nulle.

La situation en ce qui concerne les femmes faisant partie du groupe des 25-44 ans est à l'opposé de la description précédente. En 1956-57, le taux d'activité était responsable pour un peu plus des deux tiers de l'augmentation de la population active; en 1959 et 1960 pour les cinq sixièmes; et de 1961 à 1964 pour presque la totalité de la progression. Par la suite, entre 1965 et 1971, le rôle joué par la population augmenta. Il ressort de la comparaison des données trimestrielles que la population ajouta de 4,000 à 10,000 personnes par an au cours des deux premières années; de 11,000 à 15,000 entre 1967 et 1969 et de 20,000 à

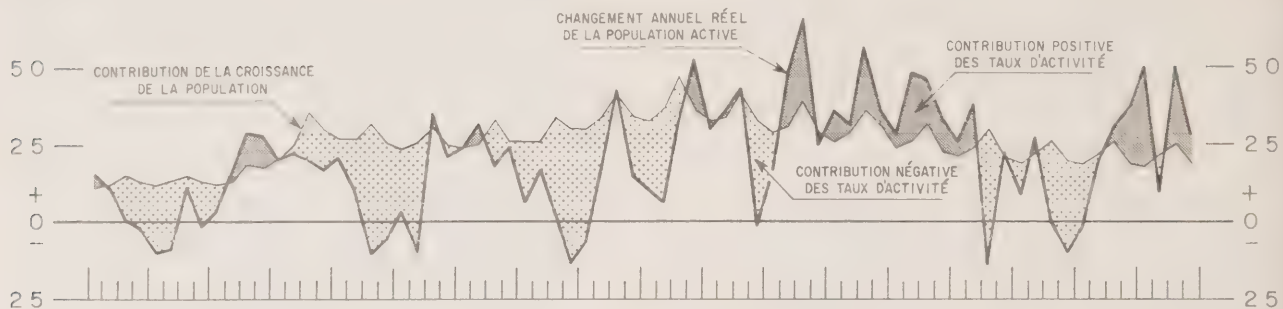
(4) Voir "Effets de la scolarisation sur les taux d'activité des hommes de 20 à 24 ans, 1966 à 1971". Revue statistique du Canada, avril 1972, Statistique Canada (Catalogue 11-003 mensuel) (Ottawa: Information Canada).

CONTRIBUTIONS DE LA CROISSANCE DE LA POPULATION ET DE L'ÉVOLUTION DES TAUX D'ACTIVITÉ AU CHANGEMENT ANNUEL DE LA POPULATION ACTIVE SELON CERTAINS GROUPES D'ÂGE ET LE SEXE, DONNÉES TRIMESTRIELLES, CANADA, 1954-1971

EN MILLIERS
75 —

HOMMES ET FEMMES DE 14 À 19 ANS

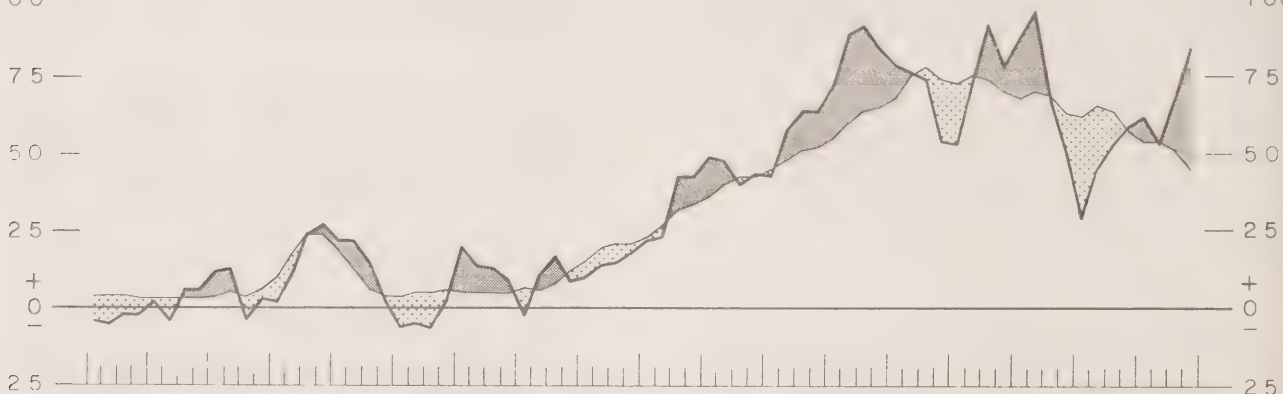
EN MILLIERS
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EN MILLIERS
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HOMMES ET FEMMES DE 20 À 24 ANS

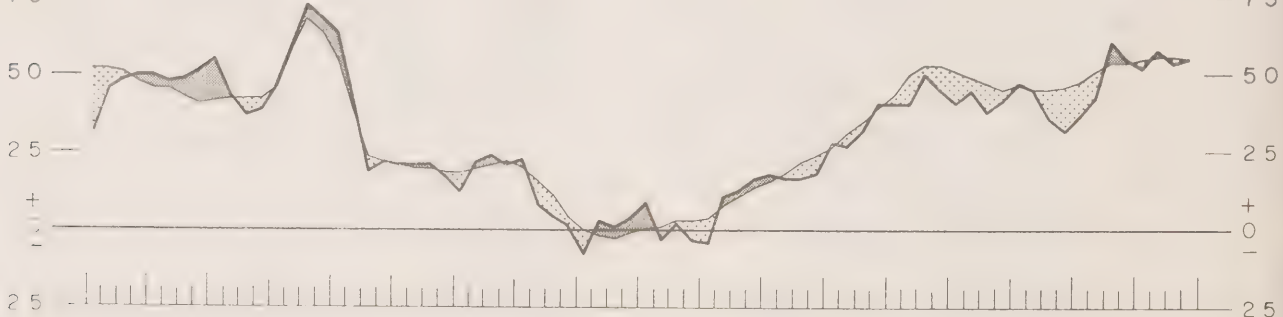
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HOMMES DE 25 À 44 ANS

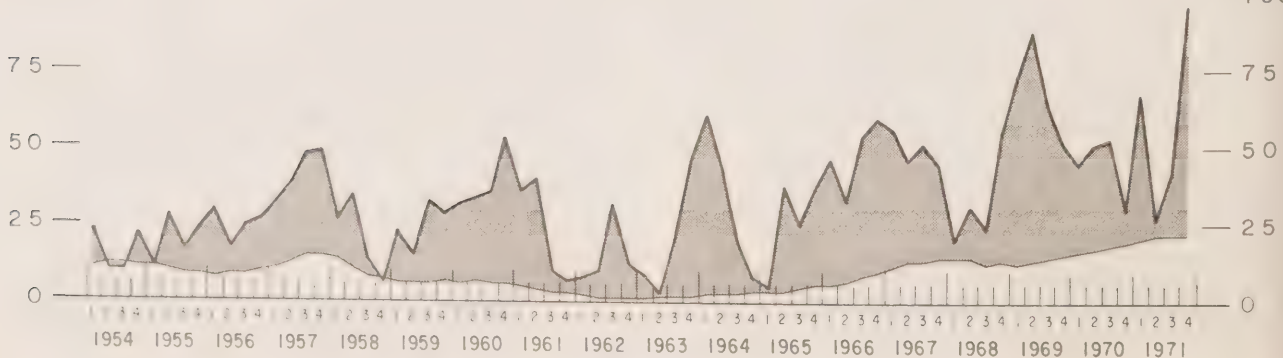
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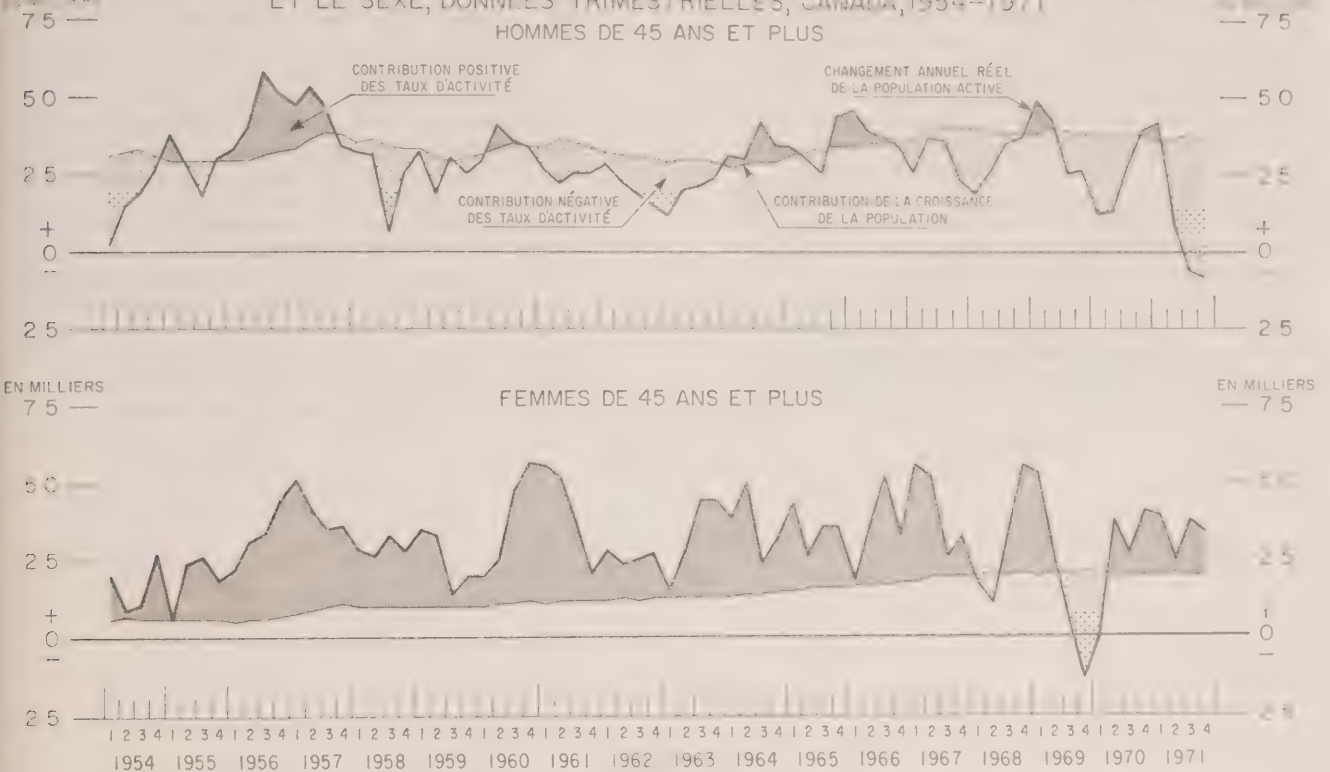
FEMMES DE 25 À 44 ANS

EN MILLIERS
100 —



GRAPHIQUE-14

CONTRIBUTIONS DE LA CROISSANCE DE LA POPULATION ET DE L'ÉVOLUTION DES TAUX D'ACTIVITÉ
AU CHANGEMENT ANNUEL DE LA POPULATION ACTIVE SELON CERTAINS GROUPES D'ÂGE
ET LE SEXE, DONNÉES TRIMESTRIELLES, CANADA, 1954-1971



22,000 personnes en 1971. Cependant, bien que la population contribua davantage à la population active, les augmentations du taux d'activité demeurèrent responsables pour la majeure partie de l'accroissement de la population active. En 1966-67, la progression du taux d'activité représentait une entrée de 24,000 à 48,000 personnes par an dans la population active, et, au cours des deux premiers trimestres de 1969, 61,000 et 73,000 personnes de plus entraient dans la population active par rapport aux trimestres correspondants de 1968. En 1970, un changement du taux d'activité ajouta un minimum de 10,000 et un maximum de 34,000 personnes alors qu'en 1971 il contribua un minimum de 5,000 et un maximum de 71,000 personnes, ce qui signifie une contribution trimestrielle moyenne des variations du taux d'activité de 27,000 et de 37,000 personnes en 1970 et 1971 respectivement.

45 ans et plus. — Pour les hommes, les changements du taux d'activité contribuèrent d'une façon négative à la croissance de la population active au cours de la majeure partie de la période étudiée. Les deux exceptions les plus importantes furent les années 1956-57 et 1964-66. Le premier cas

coïncide avec les effets d'une forte immigration à haut taux d'activité et d'un rythme exceptionnel d'accroissement de la population active (58,000 et 51,000 personnes en 1956 et 1957 respectivement). En 1971, pour la première fois, les effets négatifs du taux d'activité furent tellement importants (une baisse de 1.6 au cours de chacun des deux derniers trimestres) qu'ils entraînèrent des baisses réelles de la population active. Si l'augmentation de la population n'avait pas opposé cette tendance, la baisse enregistrée aurait atteint environ 42,000 personnes dans chacun des deux derniers trimestres.

Les tendances observées chez les femmes de ce groupe d'âge étaient similaires à celles des femmes plus jeunes; en effet, la croissance de cette population active était en grande partie due à la plus grande activité des femmes. Les plus importantes augmentations de la population active ont été enregistrées en 1957, 1960-61, 1966-67 et en 1968-69 (elles atteignaient alors environ 50,000 personnes). Les changements dus à la croissance de la population ont peu varié durant la période, comme c'était le cas chez

les hommes de 45 ans et plus. Ils ont augmenté graduellement pour s'établir à un maximum d'environ 20,000 personnes depuis 1966. Au cours du dernier trimestre de l'année 1969 et au cours du premier trimestre de 1970, la taille de la population active n'a pas augmenté pour la première fois; il y a eu respectivement baisse et maintien au même niveau à la suite d'une baisse du taux d'activité (de 1.3% et de 0.7% respectivement). Au cours des dernières années, les variations du taux d'activité ont été moins nettement positives et furent même négatives en quelques occasions (1968-70). Bien que leur rôle sur une base trimestrielle ait grandement varié, dans l'ensemble, l'importance des taux d'activité en tant que facteur d'explication des changements de la taille de la population active a baissé.

Conclusion

Au cours des 20 dernières années, les changements dans la taille et la structure de la population canadienne ont constitué les principales causes des variations survenues dans la population active. Cependant, les variations dans les taux d'activité ont également agi sur la population active. Ces variations furent à tendances opposées pour divers groupes d'âge-sexe et connurent des hauts et des bas qui amenèrent des réactions spasmodiques dans le mouvement autrement régulier de la population active. Ces mouvements désordonnés sont nettement présents tout au long de la période, en particulier pour les groupes âge-sexe où il existe une vaste réserve de main-d'oeuvre, c'est-à-dire, pour les groupes qui ont une élasticité d'offre de main-d'oeuvre plus grande.

Notes on labour statistics

1973

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Manpower Research and Development Section

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PREFACE

Notes on Labour Statistics was designed to meet a need for the reporting of results of analytic studies and developmental projects undertaken by the Labour Division, Statistics Canada.

The main work of the Division is represented in its statistical publications, all well known to users in the labour field. Perhaps not generally recognized is that modern data production involves a substantial research activity — as adaptations are made to changing circumstances, as new technology is brought into play, and as new techniques of analysis give rise to demands for new data series. In our view, some of the research and development work would be of interest to a wider audience and it is the purpose of this publication to make it available.

Frank Whittingham, Acting Co-ordinator, Manpower Research and Development was the editor for this edition of the publication.

SYLVIA OSTRY,
Chief Statistician of Canada.

THE DECLINE IN THE FEMALE-MALE UNEMPLOYMENT RATE DIFFERENTIAL IN CANADA, 1961-72

N.K. Tandan*

Introduction

The rising level of labour force participation among women in Canada has received a great deal of attention in recent years, but another important phenomenon, the rise in unemployment among females relative to males, has received relatively little attention. The female and male unemployment rates were 3.7 and 8.4% respectively in 1961 and in 1972 the corresponding rates were 5.3 and 6.8%. Factors that may explain the decline in the differential between female and male unemployment rates are explored in this article.

Female-male Unemployment Rate Differential

The relative increase in the female unemployment rate has occurred in both Canada and the United States,¹ but there is an important difference between the two countries. In the United States the female unemployment rate had been higher than the male rate, hence the gap has widened. In contrast, Canadian females have had

a lower unemployment rate than males² and, consequently, there has been a decline in the unemployment rate differential.

While the gap between female and male unemployment in Canada consistently declined between 1961 and 1972, there are two distinct sub-periods. Between 1961 and approximately 1966 there was no upward trend in the female rate (see Table 1). There was, however, a substantial downward swing in the male unemployment rate, which appears to be the main explanation for the decline in the unemployment rate differentials during the first six years of the period. With the exception of one year (1969), both the female and male unemployment rates rose each year after 1966 and the female rate increased at a greater pace than the male rate, which brought about a continued decline in the unemployment

* Manpower Research and Development Section, Labour Division. The author wishes to thank his colleagues in the Manpower Research and Development Section for helpful comments and suggestions, especially Christiane Talbot and Frank Whittingham for their contributions.

¹ For a review of the differences between female and male unemployment in the United States see: 1973 Economic Report of the President, Chapter 4, pp. 99-100.

² There has been no completely satisfactory explanation of why Canadian females have historically recorded lower unemployment in Canada in marked contrast to the experience of women in most developed countries. There is a widespread suspicion that at least part of the difference is due to the wording and enumeration procedure in the Canadian Labour Force Survey. This suspicion is strengthened by the significantly higher unemployment rate for females as reported in the Census as compared to that in the Labour Force Survey. For instance, the 1971 Census recorded a female unemployment rate which was even higher than the male rate.

TABLE 1. Female and Male Unemployment Rates, Canada, Annual Average, 1961-72

Year	Unemployment rate		Unemployment rate differential ¹
	Female	Male	
1961	3.7	8.4	.44
1962	3.3	6.9	.48
1963	3.3	6.4	.52
1964	3.1	5.3	.58
1965	2.7	4.4	.61
1966	2.6	4.0	.65
1967	3.0	4.6	.65
1968	3.4	5.5	.62
1969	3.6	5.2	.69
1970	4.5	6.6	.68
1971	5.1	7.0	.73
1972	5.3	6.8	.78

¹ Ratio of female unemployment rate to male unemployment rate.

Source: Monthly Labour Force Survey, Statistics Canada.

rate differential. This difference between the two sub-periods suggests that the decline in the unemployment rate differential after the mid-sixties may be attributable to supply and demand factors that were not operative in

the earlier part of the decade, an observation that influenced the approach taken in the empirical analysis. Hypotheses are tested for the complete period and the two sub-periods, 1961-66 and 1967-72, in a later section.

(F_t) Ratio of full- to part-time female workers — The upsurge in the number of part-time workers is another factor that is frequently mentioned as causing higher unemployment. The number of part-time female workers went up from 315 thousand in 1961 to 695 thousand in 1972, an increase of 120%. The proportion of part-time to total female workers rose from 19% to nearly 25%. Thus, the rise in female unemployment did coincide with a rise in the proportion of part-time workers.

For this development to contribute to an increase in the overall female unemployment rate, however, the incidence of unemployment among female part-time workers would have to be greater than among their full-time counterparts. An examination of unpublished data⁶ revealed that this was the case for the period under study. Consequently, the compositional change described above has contributed to the rise in the female unemployment rate and the ratio of full-time to part-time female workers was introduced as an explanatory variable.

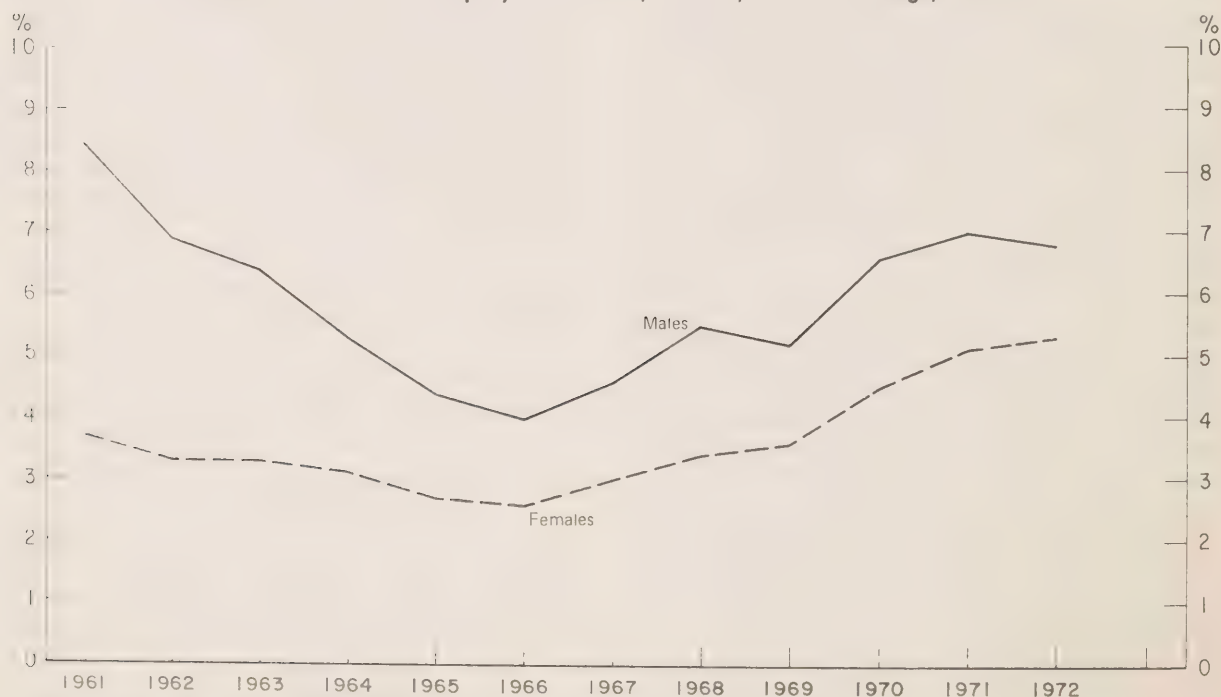
(U_s) Relative male unemployment in occupations with a high concentration of female workers — The first step in constructing this variable was to compute the

⁶ Unemployment rates for full-time and part-time female workers were derived from tabulations provided by the Labour Force Survey Division of Statistics Canada.

male unemployment rate for workers in clerical, sales, service, recreation, professional and technical occupational categories. Next, this unemployment rate was expressed as a proportion of the total male unemployment rate. The variable is meant to provide an indirect measure of demand for those occupations which employ an overwhelming majority of female workers; the above account for nearly 80% of all female employment. It can be argued, and rightly so, that specific occupations within broad groupings are sex-specific and that the labour market for male-dominated occupations is not typical of the market for female workers. Even in such a situation, however, the male rate will serve as a good proxy for the demand for female occupations provided that the male and female occupations in the group are complementary, that is, a higher demand for male-dominated occupations (such as bus boys and dishwashers in restaurants) also means a higher demand for female-dominated occupations (such as waitresses).

(U) Unemployment rate — For the period under review male unemployment is cyclically more sensitive than female unemployment (see Chart 1). It falls and rises faster during periods of economic upturn and slack compared with the female unemployment rate. It is important to take account of this cyclical influence in order to explain the secular rise in the ratio of female to male unemployment rates. This was done through the introduction of the overall unemployment rate as an independent variable in the model.

Male and Female Unemployment Rates, Canada, Annual Average, 1961-72



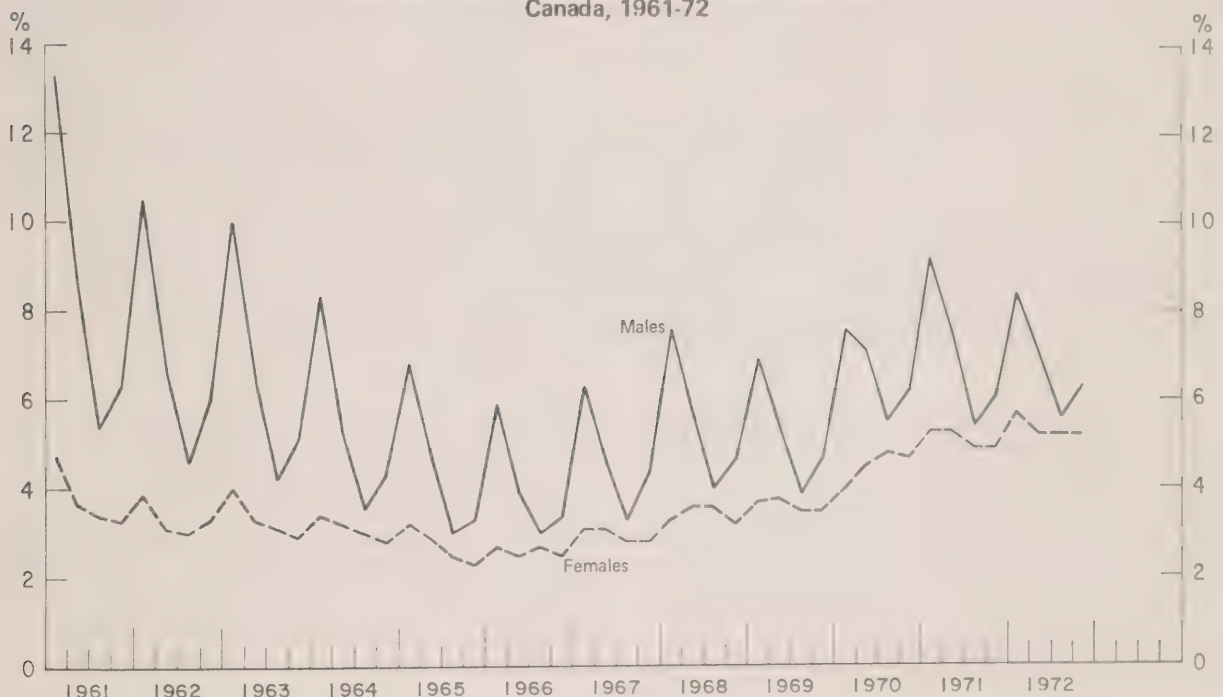
Source: Labour Force Survey Division, Statistics Canada

(I) Unemployment insurance revision – Revisions to Canada's Unemployment Insurance Act in 1971 may have contributed to an increase in female labour force participation and unemployment. The new provisions of the Act, whereby eligibility requirements were "liberalized" and benefit levels increased, could provide an economic incentive to "secondary" workers to remain in the labour force and search for a new job when they are laid off rather than leaving the work force. A dummy variable was introduced to capture the effects of the new provisions of the Act – it takes a value of one in all quarters following the introduction of the new Act in July 1971 and a value of zero in the earlier quarters.

(d_1, d_2, d_3) Seasonality – Seasonal factors affect male and female workers differently. Females are less vulnerable to seasonal fluctuations in unemployment than males (see Chart 2). Three dummy variables are introduced into the model to take account of the seasonal variations in the dependent variable; d_1, d_2 and d_3 take a value of one in the third, first and second quarters, respectively, and a value of zero in other quarters. The seasonal influence of the fourth quarter is accounted for in a residual manner.

Chart – 2

Male and Female Unemployment Rates, Quarterly,
Canada, 1961-72



Source: Labour Force Survey Division, Statistics Canada

Results of Regression Analysis

The analysis covers the period from the beginning of 1961 to the second quarter of 1972. The variables are quarterly averages based on monthly observations. As noted earlier, this period can be divided into two sub-periods. The first, 1961-66, was marked by a downward swing in unemployment, with the decline in the female-male unemployment rate differential attributable to the greater fall in the male unemployment rate.

The second period, beginning in 1967, was one of rising unemployment for both females and males, with the decline in the unemployment rate differential attributable to a more rapid increase in the female

unemployment rate. This difference between the sub-periods suggests that the decline in the female-male unemployment rate gap can be attributed to factors which affect the supply and demand for female workers only after 1966.

As a result it was decided to undertake three regressions. One for the overall period and separate regressions for each sub-period. The same variables were included for the two sub-period regressions with one exception. The dummy variable (I) used to capture the influence of the Unemployment Insurance Act revisions was only incorporated in the regression for the total time period as it was not applicable to the first sub-period.

Regression Results for Complete Period

Two sets of results are presented for the overall period. The first encompasses the results of the model as specified in the preceding section. The coefficients are retained and interpreted regardless of their level of statistical significance. For the second set, the process of backward stepwise regression is used to select the "best" model by eliminating those variables which contributed least to explaining variation in the dependent variable.

The results of the regression analysis based on the original model are shown in Table 4. Generally speaking, the model has a high explanatory power. The coefficients of the independent variables show the expected signs and most of them are statistically significant at 5% level of significance. The error standard deviation is low and the Durbin-Watson statistic is well within the acceptable limits.

TABLE 4. Analysis of Variance of Female-male Unemployment Rate — Original Model

Variable	Regression coefficient	Standard deviation	Null T
F_t	- 2.7738	0.4336	- 6.40
I	7.7446	2.7631	2.80
U	- 1.6469	0.7592	- 2.17
A	0.0052	0.0043	1.21
US	0.1830	0.1901	0.96
G	0.4671	0.4477	1.04
d_1	24.6435	4.1994	5.87 ¹
d_2	- 10.2965	3.4212	- 3.01 ¹
d_3	- 2.3732	2.5118	- 0.94 ¹
Constant	259.637	43.6501	5.95

$R^2 = 0.9261$ $\bar{R}^2 = 0.9095$
 Error standard deviation = 4.8006
 Durbin-Watson = 1.606

¹ The 't' coefficient for seasonal dummy variables measures significance relative to the missing quarter.

F_t , used to capture the influence of growth in part-time workers, turns out to be the most significant structural variable affecting the ratio of female to male unemployment. This indicates that growth in part-time relative to full-time workers had a powerful impact on the dependent variable, an impact that is attributable to the higher incidence of unemployment among part-time female workers noted earlier in the article. Although the hypothesis is supported, the strength of this variable appears suspect. An examination of the vector of

coefficients of correlation of this variable with other independent variables (Table 5) reveals a significant negative correlation with the labour force attachment variable A and variable I which was used to capture the influence of the revision to the Unemployment Insurance Act. Due to multicollinearity F_t has probably captured some of the variation due to changes in labour force attachment and the Unemployment Insurance Act revisions.

TABLE 5. Vector of Correlation of F_t with Other Independent Variables

Independent variables	Coefficient of correlation
A	- 0.42
US	- 0.16
G	- 0.05
I	- 0.44
U	- 0.08
d_1	0.42
d_2	- 0.04
d_3	- 0.17

The results also suggest that the revised Unemployment Insurance Act has had some influence on relative

female unemployment. The amendments to the Act appear to have affected women more than men and had

a positive effect on the female-male unemployment rate differential.⁷ This would also be consistent with the fact that the Act has had a greater impact on secondary and low-wage workers, categories where female workers have a higher concentration than males.

The significance of the unemployment variable, U , confirms the hypothesized cyclical behaviour of the dependent variable suggesting that male unemployment shows greater cyclical movements as compared to female unemployment. However, this variable is multicollinear with A and U^s and may be capturing some of the variation due to these two variables, both of which are apparently statistically insignificant.

Three variables — A , U^s and G — show up as statistically insignificant. Nevertheless, the direction of relationship in all three cases is consistent with the

⁷ Due to the social importance of this variable it bears mentioning that the significance of the revised Unemployment Insurance Act is not sensitive to changes in model specification.

hypothesized relationships. It was suggested earlier that A and U^s are collinear with other statistically significant variables and this might be responsible for weakening the regression coefficients for these two variables. In this respect it is pertinent to note that in a regression without the cyclical variable U , both U^s and A come out to be statistically significant.⁸

Finally, the ratio of female to male unemployment shows a distinct seasonal pattern. Both d_1 and d_2 , dummy variables for the third and the first quarter, are statistically significant.

Table 6 gives the results of the "best" regression model based on backward stepwise regression. This model eliminates one by one all those variables from the equation which do not add to R^2 in a statistically significant way. The remaining variables also capture the effects of the excluded variables.

⁸ The regression coefficients for A and U^s in this equation were 3.21 and 4.43 respectively. \bar{R}^2 was 0.88 and the error standard deviation was 5.56.

TABLE 6. Analysis of Variance of Female-male Unemployment Ratio — Stepwise Regression

Variable	Regression coefficient	Standard deviation	Null T
U^s	0.2748	0.1478	1.86
F_t	- 2.6016	0.3940	- 6.60
I	9.0839	2.5258	3.60
d_1	19.9057	2.7710	7.18
d_2	- 9.1231	2.1525	- 4.24
U	- 1.4615	0.6571	- 2.22
Constant	251.563	36.6766	6.86

$R^2 = 0.9298$ $\bar{R}^2 = 0.9098$
Error standard deviation = 4.7929
Durbin-Watson = 1.540

The process of stepwise regression led to the exclusion of the variables A , G and d_3 . However, U^s , which was insignificant in the first equation, becomes statistically significant. The other significant variables, F_t , I and U , become more significant than before.⁹

Sub-period Regression Results

The results of the regressions for the two sub-periods, 1961-66 and 1967-72, are presented in Table 7.

⁹ The stepwise method is useful if the object is forecasting since it prevents "unnecessary" use of such data as would not improve the accuracy of prediction. However, an examination of the relationship as estimated by the original set of variables is more helpful in understanding relationships between the dependent and the independent variables.

The explanatory power of the model, as measured by R^2 and the error standard deviation, is substantially less during the first period 1961-66, as compared to the second, 1967 onwards. Further, none of the behavioural variables, such as labour force attachment, are significant at a 5% confidence level for the first period, and only one, F_t , is significant at a 10% level. Most of the variation in the dependent variable is explained by the dummy variables accounting for seasonal variation.

During the second period, labour force attachment, A , is the most important factor responsible for the trend towards equalizing unemployment rates between men and women. The increasing proportion of part-time workers among women, which was significant at the 10% level in the first period regression, becomes significant at a 5% confidence level. Another variable that becomes

TABLE 7. Sub-period Analysis of Variance of Female-male Unemployment Rate

Variable	Regression coefficient		Standard deviation		Null T	
	1961-66	1967-72	1961-66	1967-72	1961-66	1967-72
A	- 0.003	0.021	0.008	0.004	- 0.32	4.86
U ^s	0.032	0.455	0.305	0.283	0.11	1.61
F _t	- 3.399	- 2.691	1.987	1.154	- 1.71	- 2.33
G	0.471	0.435	0.677	0.700	0.70	0.62
U	- 0.953	- 1.217	2.070	1.499	- 0.46	- 0.81
d ₁	18.501	40.892	7.920	6.120	2.34	6.68
d ₂	- 14.213	- 7.402	6.557	5.835	- 2.17	- 1.27
d ₃	- 5.630	- 0.721	4.424	3.473	- 1.27	- 0.21
Constant	335.239	193.398	145.484	94.059	2.30	2.06

For 1961-66,

R² = 0.917

R² = 0.872

Error standard deviation = 5.470

Durbin-Watson = 1.433

For 1967-72,

R² = 0.951

R² = 0.928

Error standard deviation = 3.727

Durbin-Watson = 2.425

significant (at a 10% level of confidence) in the second period is U^s which represents the relative labour market tightness for occupations with a concentration of female workers. It would appear that after 1966 the supply of workers to these occupations grew faster than demand.

Conclusions

The main finding from this analysis is that the upward swing in the female unemployment rate after 1966, and associated decline in the female-male unemployment rate differential, appears to be attributable, in large part, to a strengthening in the labour force attachment of females. Further, while the behavioural changes began well before the 1971 revisions to the Unemployment Insurance Act, the evidence suggests that the revisions had a positive influence on this behavioural change. The results also reveal that the change on the supply side began during a period when labour demand in female-dominated occupations did not grow at a rate sufficient to absorb all those seeking employment. Another contributing factor has been the substantial increase in the relative importance of part-time workers in the female labour force. For the period under review, these workers had a higher unemployment rate than full-time female workers.

What of the future? There is no reason to expect the female labour force participation rate to stabilize in the foreseeable future. Nor is there any reason to expect the strengthening of their labour force attachment to diminish. As a result it seems reasonable to expect that, all other things equal, the female-male unemployment rate differential will continue to decline. In fact, it would not be surprising to observe the female unemployment rate rise above the male rate before the ratio stabilizes.

A development that could dampen the rise in the female unemployment rate would be occupational diversification of female employment. Although male-dominated occupations have been potentially opened to females through the passage of equal opportunity legislation by a number of Canadian jurisdictions in recent years, there is a strong expectation that market forces, rather than institutional, will be the more important determinants of developments. In this regard, because of the shortage of prime-age male workers at the present time, certain employers have been forced to recruit females for jobs traditionally held by males. If this becomes general, diversification will undermine the upward trend in the female unemployment rate.

LABOUR MARKET EXPERIENCE OF OUT-OF-SCHOOL YOUTH

M. Daniel and F. Whittingham*

The position in the labour market of out-of-school youth has received a great deal of attention in recent years because of the high incidence of unemployment among them. Their above average unemployment has been attributed to such factors as inadequate education and training, the high rate of job change as young persons look for the "right job", a reduction in the number of entry level jobs for inexperienced workers, and minimum wage laws which may deter employers from hiring workers with little training or experience. There is a dearth of information on the impact of most of these factors. However, some analysis of the influence of work experience and type of educational background on the labour market experience of out-of-school youth can be undertaken with data collected through a special series of questions appended to the Labour Force Survey questionnaire in November 1972.

For young persons who had left school, information was collected on the following characteristics:¹

- (a) level of education and whether the person had any technical or vocational education or training;

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¹ Approximately 2.2 million persons in the 14-24 age category who had left school were identified through the special questions. Excluded from this estimate are persons who were reported as apprentices or trainees as of November 1972.

- (b) year completed education or training;

- (c) number of months employed and unemployed during the previous six months;

- (d) number of hours usually worked during the previous six months.

Data from this survey are presented in this article to obtain a better understanding of the problems faced by out-of-school youth. After establishing the importance of this group in the labour force, the impact of work experience on their employment-unemployment experience is examined. Also, the relationship between type of educational background and labour market experience is briefly reviewed.

Out-of-school Youth in the Labour Force

The level of labour force participation among out-of-school youth was 81% in November 1972. This represented approximately 1,790,000 workers, and they comprised one fifth of the total labour force. Among these young workers, 220,000 were unemployed and their share of total unemployment was disproportionately high, 42%.

The out-of-school group dominate the total labour force (students plus non-students) for persons 14-24 years of age. They accounted for 83% of the total. Further, they constituted 81.6 and 95.2% of the employed and unemployed categories (see Table 1).

TABLE 1. Persons Out-of-school as a Proportion of Total Labour Force for Persons 14-24 Years of Age and as a Proportion of the Employed and Unemployed,¹ November 1972

Labour force	83.0
Employed	81.6
Unemployed	95.2

¹ The estimates used for this table exclude persons reported as part-time students, apprentices or trainees.

Work Experience and Level of Education

One would expect both work experience and level of education to have an important influence on the employment-unemployment experience of young workers. As work experience increases, skills should accrue through on-the-job training and one would expect an improvement in work habits, factors that should improve a person's competitive position in the labour market. With respect to level of education, many employers tend to set minimum educational attainment levels as a prerequisite even for employment in low level entry jobs, while for most of the better employment opportunities higher educational levels are mandatory.

In the analysis, length of time out of school is used as a proxy for work experience. After controlling for level of education there is a definite relationship between length of time out of school and incidence of unemployment. For persons with some high school education or less, the unemployment rate falls from 25.3 for those who left school in the year of the survey (1972) to 14.1% for persons out of school approximately 2 years or more (see Table 2). The same pattern holds for persons in the educational category "completed high school or more", and the relationship is also distinct for males and females in each educational attainment category.

TABLE 2. Unemployment Rates for Out-of-school 14-24 Year Olds by Year Completed Schooling, Level of Education and Sex, November 1972

Sex and year completed schooling	Level of education	
	Some high school or less	Completed high school or more
Both sexes:		
1972	25.3	14.0
1971	19.0	10.5
Before 1971	14.1	7.1
Male:		
1972	28.6	16.9
1971	19.8	13.9
Before 1971	15.2	8.0
Female:		
1972	19.4	11.3
1971	17.5	7.1
Before 1971	12.1	6.3

This negative relationship between incidence of unemployment and length of time in the labour force suggests there is a serious transition problem in moving from school to the work force. Individuals do not enter into a stable employment pattern when they leave school. Rather, they experience difficulties in finding satisfactory jobs and adjusting to the demands of the labour market.

The positive influence of educational attainment on a person's position in the labour force is also evident

from Table 2. For each year completed schooling category the unemployment rate drops dramatically as one moves from the lower to the higher level of education.

Level of education is also related to level of labour force participation. As can be seen from Table 3, level of education, when year completed school is held constant, is positively related to the propensity to participate in the labour force. Further, this relationship holds for both males and females.

TABLE 3. Labour Force Participation Rates for Out-of-school 14-24 Year Olds by Year Completed Schooling, Level of Education and Sex, November 1972

Sex and year completed school	Level of education	
	Some high school or less	Completed high school or more
Both sexes:		
1972	84.1	93.2
1971	81.8	91.9
Before 1971	72.5	84.0
Male:		
1972	92.2	94.8
1971	93.4	96.4
Before 1971	95.4	98.1
Female:		
1972	72.5	91.8
1971	65.2	87.9
Before 1971	50.4	74.2

For males, length of time out of school also has a positive influence on labour force participation. For females, however, the labour force participation rate declines as length of time out of school increases. This divergence reflects the influence of marriage and child care which reduces female labour force participation and imposes responsibilities on males that require greater labour force participation.²

Labour Market Experience Between June and November 1972

The employment-unemployment experience of out-of-school youth for the six month period prior to

² The accumulation of work experience and skills as length of time out of school increases may have a positive influence on labour force attachment among males. Length of time out of school is also acting as a proxy for age in this case and the expectation is that marriage and related responsibilities underly the rise in the male labour force participation rate.

November 1972 is reviewed in this section. Again the focus is on the influence of work experience and level of education.

At each level of education category a higher proportion of males who had been out of school two or more years were employed the full six months preceding the survey compared to those who left school in 1971 or 1972. Undoubtedly, this pattern reflects many factors such as an increase in maturity and personal responsibilities as length of time out of school increases, and it also suggests that a more stable employment pattern emerges as work experience accumulates.

The same pattern is not evident for females, which is attributable to data limitations. To obtain meaningful results, one would have to control for marital status. The estimates are too small, however, to permit this procedure.

TABLE 4. Percentage of Out-of-school 14-24 Year Olds Employed the Full Six Months Between June and November 1972 by Year Completed School, Level of Education and Sex

Sex and year completed school	Level of education	
	Some high school or less	Completed high school or more
Male:		
1972	25.4	35.6
1971	42.9	61.1
Before 1971	60.5	73.6
Female:		
1972	--	34.5
1971	30.6	60.0
Before 1971	30.7	56.8

-- Estimate too small to be reliable.

With respect to education, this factor has a positive influence on success in the labour market. For each year completed school category, the proportion that worked the entire six month period increases with level of education, and the pattern holds for both males and females.

Another aspect that can be examined is the usual number of hours per week worked by individuals when they were employed. This measure provides a rough approximation of whether persons were fully employed when they held jobs. Table 5 shows that, for males in both educational categories, a greater proportion who had been out of school two years or more worked a full work week (35 hours or more) than those who left school either one year before the survey or in the year of the survey.

Again, a similar pattern is not evident for females. Rather, the reverse is the case, which probably reflects an increase in the importance of part-time jobs for females after marriage.

The positive influence of level of education on employment is also apparent from Table 5. Controlling for length of time out of school, the proportion who usually worked 35 hours or more tends to increase with level of education. This relationship is very distinct for females but must be qualified for males. While there is a definite difference between the two educational categories for males who left school in the survey year, it narrows very substantially for those out of school approximately one year or more. This suggests that, as work experience accumulates, the acquisition of higher levels of formal education becomes less important in obtaining full-time employment.

TABLE 5. Percentage of Out-of-school 14-24 Year Olds Who Worked 35 Hours or More When Employed Between June and November 1972 by Year Completed School, Level of Education and Sex

Sex and year completed school	Level of education	
	Some high school or less	Completed high school or more
Male:		
1972	73.0	84.6
1971	87.1	88.9
Before 1971	89.1	93.1
Female:		
1972	58.1	74.3
1971	55.1	81.0
Before 1971	43.9	67.7

An examination of data on the unemployment experience of out-of-school youth over the six month period June to November 1972 reveals that both the incidence and duration of unemployment are inversely related to length of work experience (see Table 6). For both educational categories, the proportion who experi-

enced no unemployment during the six month period rises substantially as length of time out of school increases. There is also a marked decline in duration of unemployment as one moves from those who left school in 1972 and 1971 to the group who left school before 1971.

TABLE 6. Percentage Distribution of Out-of-school 14-24 Year Olds by Number of Months Unemployed Between June and November 1972

Level of education and unemployment	Year completed school		
	1972	1971	Before 1971
Some high school or less:			
No unemployment	52.4	60.7	78.0
Unemployed 3 months or less	34.7	26.2	14.0
Unemployed 4 months or more	12.9	13.1	8.0
Total	100.0	100.0	100.0
Completed high school or more:			
No unemployment	60.2	76.3	85.3
Unemployed 3 months or less	31.0	17.7	10.6
Unemployed 4 months or more	8.8	--	4.1
Total	100.0	100.0	100.0

-- Estimates were too small to be reliable.

To briefly summarize, all three measures — proportion employed six months, weekly hours usually worked and unemployment — reveal that length of time out of school has a positive influence on a person's ability to obtain stable employment. These results support the contention that individuals find themselves in a better position to compete for jobs as work experience and job related skills accumulate. Further, as length of time in the labour market increases many persons presumably find jobs they are prepared to

hold for longer periods of time with a consequent increase in seniority and decrease in the risk of layoff.

School Leavers by Type of Educational Background

The influence of type of education on the labour market experience of persons 14-24 years of age who are out of school is examined in this section. Respondents were distributed according to whether they had only an academic education or had some further education or

training of a vocational or technical nature.³ Before proceeding it is necessary to make a few observations on the characteristics of these two groups.

³ This would include training as a result of attending non-degree granting courses in private trade schools, private business colleges, technical institutes, community or junior colleges, CEGEP, schools of nursing, apprenticeship, Canada Manpower Institutions, College of Applied Arts and Technology, etc. A small category of persons who were reported to have some "other" additional education or training besides the usual academic but who were unable to identify the type were excluded.

The age-sex composition of the two groups is somewhat different. Males constitute 55% of those with some vocational or technical education while females comprise 53% of those with only an academic background. With respect to age, the academic group contains a higher proportion of teenagers and a lower proportion of 20-24 year olds than the group with a combination of academic and vocational education (see Table 7). This difference in the age distributions arises because few teenagers would have finished their academic program and completed some additional vocational or technical training.

TABLE 7. Age Composition of Out-of-school Youth by Educational Background

Age	Academic	Academic plus vocational or technical
	per cent	
14-19 years	30.5	12.2
20-24 "	69.5	87.8
Totals	100.0	100.0

There are marked differences between the two groups with respect to level of academic education and length of time out of school. Almost 71% of the individuals with some additional vocational education had completed high school but only 47% of those with a pure academic background had finished their secondary education. This variation in educational attainment is reflected in length of time out of school. The proportion that left school before 1971 was 86.5% for the academic group compared to 78.3% for those with some additional vocational or technical education or training.

The higher level of educational attainment among those with some vocational or technical background is partly attributable to the fact that entry into many vocational and technical programs requires high school completion. For example, it is a prerequisite for entry into the two and three year vocational programs offered

by community colleges. Also, a number of craft unions in the construction industry and employers in the manufacturing sector make completion of high school an entrance requirement for apprenticeship programs.

Given the differences just described, in analyzing labour market experience by type of educational background one should control for level of academic education and length of time out of school because both these factors have an influence on a person's success in the labour market. Since the estimates were too small to permit this approach for analyzing the incidence of unemployment, it has been necessary to use a different measure of labour utilization in this section, an employment rate. This is defined simply as the percentage of a group of persons in the labour force who are employed in a specified reference period.

TABLE 8. Employment Rates¹ for Out-of-school 14-24 Year Olds by Educational Background, Level of Academic Education and Year Completed School, November 1972

Educational background and level of education	Year completed school		
	1972	1971	Before 1971
Academic:			
Some high school or less	74.6	84.4	87.2
Completed high school or more	85.2	88.9	92.3
Academic plus vocational or technical:			
Some high school or less	--	--	88.2
Completed high school or more	85.7	93.1	94.8

¹ Employment rate is defined as the proportion in a group employed as of the reference period.
 -- Estimate too small to be reliable.

Employment rates by level of education and length of time out of school are presented in Table 8. After controlling for these two factors, those with some vocational or technical training have a higher employment rate than their counterparts in the academic category. It should be stressed that this comparison is based on very broad groupings. For example, the category "academic - completed high school or more" contains persons with Bachelor of Arts and Science degrees as well as persons with post-graduate degrees. Also, the category "academic plus vocational or technical - completed high school or more" includes persons who took a secretarial course in a private business college after completing high school as well as graduates from apprenticeship and industrial training programs and community colleges.

Given the lack of homogeneity, however, the data still suggest that, on average, persons with some vocational or technical education have a better employment experience than their counterparts with a pure academic education. Because of their additional training one would expect them to be in a better position to compete for jobs. Further, one would expect employers to prefer persons with some vocational or technical education because it reduces the training investment the employer has to make.

In addition to using the employment rate as a measure of performance some comparisons between

those with and those without some vocational education or training can be made for the six month period June to November 1972.

Data on the proportion of persons who were employed the full six month period, the proportion with no unemployment during the period and the proportion of the employed who usually worked 35 hours or more per week are shown in Tables 9, 10 and 11 respectively.

Based on these statistics, it appears that persons who completed high school or more and have some additional vocational education are more successful in the labour market than persons with only an academic education. For those who did not complete their high school education, however, there is no clear pattern. Persons with an academic background do somewhat better than those who have some additional vocational education when one uses the percentage who experienced no unemployment in the six month period (see Table 10); but the other two measures (Tables 9 and 11) reveal little difference between the two groups. The reason for this may be the fact that persons with only the academic education tend to leave school at an earlier age. Consequently, they would be in the labour market for a longer period of time than those who have some additional vocational or technical training which, for high school drop-outs, may tend to offset the advantage bestowed by additional vocational or technical education.

TABLE 9. Percentage of Out-of-school 14-24 Year Olds Employed Sometime Between June and November 1972 Who Worked the Complete Six Month Period, by Level of Education and Educational Background

Level of education	Educational background	
	Academic	Academic plus vocational or technical
Some high school or less	57.0	56.9
Completed high school or more	64.3	70.4

TABLE 10. Percentage of Out-of-school 14-24 Year Olds Who Experienced No Unemployment Between June and November 1972, by Level of Education and Educational Background

Level of education	Educational background	
	Academic	Academic plus vocational or technical
Some high school or less	73.7	69.5
Completed high school or more	78.2	80.7

TABLE 11. Percentage of Out-of-school 14-24 Year Olds Employed Sometime Between June and November 1972 Who Usually Worked Thirty-five Hours or More Per Week, by Level of Education and Educational Background

Level of education	Educational background	
	Academic	Academic plus vocational or technical
Some high school or less	90.7	90.2
Completed high school or more	90.4	93.3

Summary and Conclusions

Two main points emerge. First, the analysis supports the widely held contention that a serious transition problem exists for young people in going from school to the labour force. Both in the week of the survey and in the six months preceding the survey, the unemployment rate for those persons who finished their full-time education before 1971 was found to be substantially lower than for those individuals with the same level of education who finished in 1971 or 1972. The second major finding concerns the effect of educational background on labour market experience. For persons with at least a high school diploma, individuals with technical or vocational training in addition to their academic education appear to do significantly better in the labour market than those with a pure academic education. The technical and vocational group had a higher labour force participation rate and employment rate. Also, they had a better employment record over the six month period June to November 1972. This

conclusion, however, has to be qualified for persons who left school before completing high school. Persons in this category with some vocational or technical education had a higher labour force participation rate and better employment rate as of November 1972; but there was little difference between their labour market experience over the six month period June to November 1972 and that of their counterparts with only academic education.

The above findings have a number of implications. It would appear that the difficult transition from school to work could be reduced by additional investment in occupational and career counselling, especially at the high school level. Further, the transition problem could be eased by providing students with an opportunity to obtain a better understanding of the world of work in terms of the actual characteristics of jobs and their requirements through co-operative programs between industry and educational institutions.

THEORIES, CONCEPTS AND THE ART OF MEASUREMENT: ECONOMIC THEORIES' RELATIONSHIP TO THE LABOUR FORCE SURVEY CONCEPTS

Kim Farrall*

Introduction

The general meaning of the terms unemployment and employment are well understood by most people, but for use in household surveys operational definitions of these key concepts are not easily devised. How these concepts ought to be defined depends primarily on the purpose for which the measurement is intended.¹ Also, how the concepts actually are defined depends heavily upon prevailing economic theory.

Variables chosen for measurement in a household survey must reflect prevailing theory, since theory establishes both the key variables to measure and the framework for interpreting the resulting figures. Economic theory, however, changes over time. As well, interpretation of the causality between variables as perceived through economic theory can also change. Accordingly, if the adequacy of a set of statistics depends upon its use, changes in economic theory should have an impact upon the perceived meaning and validity of labour force statistics. What proved to be an adequate measure for one set of perceived problems may prove to be inadequate for another, necessitating a change in concepts or methods of measurement.

The main concern of the paper is to trace the effect of developments in economic theory upon the concepts of employment and unemployment and the related work to operationalize these concepts for household surveys. This intriguing question is rarely examined, but some appreciation of how changes in economic theory may affect concepts and the methods adopted to measure these concepts is needed if policy-makers' demands for accurate, reliable and meaningful labour force statistics are to be met.

The paper is divided into two main sections. A brief overview on the theoretical foundations underlying labour force classification concepts and an examination of the influence of pre-Keynesian, Keynesian and post-Keynesian theories upon labour force classification concepts are presented in the first part. The implications of recent neoclassical theory for operational concepts of unemployment are also made explicit. The second

section of the paper deals with select aspects of the problems and deficiencies in using activity-based concepts of unemployment and employment in household surveys.

I. Overview of the Theoretical Foundations of Labour Force Classification Concepts

Theoretical developments surrounding labour force classification concepts fall conveniently into three main periods with changes between the periods paralleling major crises of economic theory. While roughly chronological, these changes partly overlap due to the nature of developments in economic theory. To organize the discussion they can be viewed as:

- (a) the relationship of the "gainfully-occupied" concept to pre-1930's theory (pre-Keynesian theory);
- (b) the relationship of the "activity-based" concepts to Keynesian and neoclassical macro models (theories) of the economy; and
- (c) the relationship of recent economic research (theoretical) to the modified "activity-based" concepts used to measure the labour force. This may be sub-divided into:
 - (i) developments surrounding the Gordon Committee approach; and
 - (ii) post-1967 micro economic or flow approach.

An adequate assessment of the main competing theories of how a market economy behaves would be too space consuming; consequently, the discussion is restricted to those elements of the theory which help explain how the concepts developed.

Pre-Keynesian Theory

Under the classical economist's view of the economy, unemployment was believed to reflect only the excess of casual labour available. The classical macro-economic model of full employment equilibrium concluded that no serious unemployment could occur, since the market mechanism ensured that everyone who desired employment at the going wage would be employed. Hence, both the government's non-concern with persons unemployed and neglect of the unemployment concept prior to the 1930's rested upon the conclusion drawn from classical economic theory that full employment automatically occurred. Being unemployed was a result of individual choice rather than the result of any flaws in the economic system. In the English tradition of economics, concern for the problem of persistent unemployment as a reflection of frictions in the economy did develop; but American thought

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¹ See Stewart, G., "The Definition of Unemployment", *Review of Economics and Statistics*, XXXII (February 1950, p. 56. Stewart, in stressing the many-sided nature of the unemployment concept, suggested that "any controversy as to the volume of unemployment... turns primarily on questions of concepts and definitions". This point was first recognized by Long when he argued that "it is a basic mistake to assume there is only one concept, definition and statistical measure of unemployment". See Long, C., "The Concept of Unemployment", *Quarterly Journal of Economics*, LVII (November 1942).

treated persistent unemployment as a vagrancy problem.² While it was recognized that there may be some persons who did not want to work and that some persons may be temporarily unemployed as they moved from one job to another, nevertheless, owing to the self-regulatory nature of the economic system, both classical and neoclassical argued that there could never by any serious unemployment due to malfunctions in the economic system. This is clearly illustrated by Piguo's 1913 study of unemployment which suggests, like any modern neoclassical textbooks based upon a similar conceptual framework, that if wages were flexible unemployment would be unimportant. As a result, classical theory avoided the problems associated with identifying the characteristics, elements, or types of unemployment.

The first attempts at obtaining labour force statistics reflected the above view of the world. Because both classical and neoclassical theory stressed employment's role as an economic indicator, the Census concepts such as the "gainfully-occupied" were developed primarily to measure secular changes in the occupation and industrial composition of the work force. The "gainfully-occupied" concept did not distinguish unemployment. Under this concept workers were not required to be either working or looking for work to be counted as part of the labour force. Moreover, the "gainfully-occupied" measures status via occupation and not via employment.

No reference is made by this concept to either the time dimension or to labour force flows. As a result, for seasonal, part-time and new workers – all persons without unique occupational roles – the concept was not useful. Any actual unemployment that occurred in the real world could be explained away as a voluntary and temporary phenomenon, a residual that fluctuated with the volume of employment.

Keynesian Theory and the Measurement of Labour Force

S. Kuhn in his book *The Structure of Scientific Revolutions* examines the question "how does the ruling theory of a science get displaced by a new theory?". He argues that the displacement of one theory by another – of neoclassical by Keynes General Theory for example – occurs abruptly when the new theory explains the key phenomenon or major crises unaccountable for by the old theory. The occurrence of the Great Depression, combined with the development of Keynesian economics, drastically changed many of the ways in which economists and policy-makers viewed the

nature of unemployment in the economy.³ Policy-makers' data demands also changed drastically.

The switch to Keynesian theory reflected the failure of neoclassical theory to explain large-scale mass unemployment: a failure Joan Robinson has called the first crises of economics.⁴ Moreover, the development of the Keynesian analysis of the labour market gave an explicit theoretical concept of unemployment applicable to measuring large-scale involuntary unemployment that persists in a state of demand deficiency. All persons who offered their labour at the current market price but who were unable to find a buyer were involuntarily unemployed. This definition of unemployment marks a sharp break with the neoclassical view of unemployment as voluntary whereby unemployment resulted from an individual's choice rather than from market forces. The essential difference between the two theories results from the Keynesian re-evaluation of the determinants of labour market behaviour – control over the level of aggregate demand became the key factor determining the level of unemployment. While only frictional unemployment was possible under the neoclassical model, Keynes' approach presented a different conceptual framework for viewing labour supply⁵ by directing attention at the stock of unemployment occurring in a deficient demand economy.

The first direct attempts to measure unemployment in both the United States and Canada reflected policy-makers' needs to measure and understand what appeared to be the stock nature of unemployment. In practical terms the concept of activity rather than the concept of status by occupation became the key element in policy-makers' data demands.

However, pragmatic considerations placed restrictions on the activity concept and the operational procedures adopted. By 1938 the criteria, priorities and

³ By itself, not much causality can be attached to the depression of the 1930's. There were earlier depressions just as bad which economic theory ignored. Moreover, pre-Keynesian business cycle theory implicitly recognized that large scale unemployment would occur, even if it was not integrated into mainstream economics. Stigler refutes the idea that every important advance in economic theory spring from major social or economic developments. "It may be (although I somewhat doubt it) that Keynes General Theory was the product of the Great Depression, but if so it is one of the very few great events that have affected the basic theory." See Stigler, G.J., "The Influence of Events and Policies on Economic Theory" in *Essays in the History of Economics* (University of Chicago Press, 1965).

⁴ Robinson, J. "The Second Crises of Economic Theory", *American Economic Review*, 1971.

⁵ See Leijonhufvud, "Effective Demand Failures", *Swedish Journal of Economics* 1973, where he argues that "Keynes' pre-occupation with the involuntary unemployment states of the system allowed him to split the traditional model of household behaviour (which underlies neoclassical theory) down the middle, separating the consumption decision from the labour supply decision . . . Traditional determinants of the labour supply decision may then be ignored . . ."

² See Mills, F.S., "Contemporary Theories of Unemployment and Unemployment Relief", Appendix II select list of references, in *Studies in History, Economic and Public Law*, ed. by Faculty of Political Science of Columbia University (New York: Longman, Green and Co., 1917-18).

definitions for the activity concept of unemployment, as developed for the United States Public Works Program, became centered on the degree of attachment to the labour force.⁶ The pragmatic "seeking-work" criterion, which demonstrates willingness and availability of the unemployed, was taken from the eligibility rules of the United States Unemployment Insurance Act. In a similar fashion the conceptual problem of determining the minimum number of hours of work to classify a person as employed was adopted from payroll accounting methods – as was the definition of a job, the treatment of self-employed, etc. With the conceptual test of job seeking, three categories of exceptions became acceptable in the operational measure of unemployment. These were:

- (i) temporary interrupted, e.g. illness, etc. . . ;
- (ii) postponed, e.g. layoffs (which raised the problem of how to handle the distinction between temporary and indefinite layoffs); and
- (iii) abandoned, e.g. in the belief that no job was available.

Of the various sorter concepts on "activity" – many institutionally derived – tried by the United States Bureau of the Census during the 1930's, only the behavioural criteria of seeking work was adopted for use in the household surveys developed in the 1940's.

The Labour Force Surveys established in both Canada and the U.S. in the 1940's rapidly became enshrined as policy tools of major importance for the effective running of the economy. Because the definition of unemployment was based upon recent job seeking activity, and the definition of employment was orientated around job possession, labour force concepts could serve as a proxy for labour supply. Accordingly, given the assumption that any job is better than no job at all, these labour force measures were used to focus on the Keynesian based policy question of involuntary unemployment. Unemployment figures were interpreted as a measure of the amount of excess labour supply existing in the economy due to deficient aggregate demand and hours of work data assisted in analysis of the amount of under-utilization of labour in the economy.

Recent Economic Research and Labour Force Classification Concepts

For a number of years the Keynesian theory provided a pattern within which labour force data from household surveys appeared intelligible, explainable and usable for the purposes of forging economic policy. But in the late 1950's and early 1960's a dispute over the cause of unemployment seriously affected the use of the data as a policy tool.

⁶ See Webb, J.N., "Concepts Used in Unemployment Surveys", *Journal of the American Statistical Association*, XXXIV (March 1939), pp. 49-59.

Structural change in the economy was introduced as an alternative to deficient aggregate demand as a cause of unemployment. This unleashed a host of background theoretical problems underlying the measurement of unemployment. In particular, it brought into question the peculiar co-existence of neoclassical and Keynesian theory, the latter being the macro side of a macro-micro split in economic theory that developed in the early 1950's. This in turn reopened the debate over the appropriateness of the Keynesian concept of involuntary unemployment for measuring unemployment, and raised the issue of whether measurements were being based on concepts that ignored real world phenomena.

Most of the difficulties that arose from the neoclassical-Keynesian theory conflict were a reflection of the fact that macro models of labour markets were, by necessity, quite simplistic. In addition, economists failed to integrate micro model insights on the determinants of labour supply with the macro behavioural assumption. A clearer picture of macro labour market operations involved a substantial rethinking of economic theory, a development which was not to occur until the late 1960's.⁷ This meant that neither the neoclassical school of economics nor the Keynesian stream of thought adequately captured what was happening in the real world. Existing procedures appeared to ignore the problem of discouraged workers and the problem of hidden unemployment which empirical research suggested existed. Thus, the theoretical conflict over the correct formulation of the concept of full employment and unemployment raised the issue of how closely the survey concept should be tied to Keynesian-based criteria. Both theories agreed upon the desirability of retaining the activity-based concept, given that an economic rather than hardship criterion was required for measuring unemployment. What could not be agreed upon was whether labour force measurements were based on concepts that ignored certain real world phenomena.

The debate over the causes and appropriate cures of unemployment, together with the problem of determining if hidden unemployment⁸ could exist, posed

⁷ For example, consider Eckstein's and Corina's assessment of recent research. Eckstein's discussion of the search-model approach to unemployment suggests that such theories are "as remote from the central employment problem of our time as the classical theory was in the 1930's". See Eckstein, O., "Discussion: New Micro-Economics of Inflation and Employment Theory", *American Economic Review*, LIX, 1969. Corina contends that the labour market theories emerging from revised neoclassical economics in the 1960's have not revolutionized labour and analysis but rather reformulated the Marshall-Robbins-Hicks short-run labour supply. See Corina, J., *Labour Market Economics* (London: Heineman Educational Books, 1972), p. 163.

⁸ See Mincer, J., "Determining Who are the Hidden Unemployed", *Monthly Labor Review*, XCIV, No. 3, U.S. Department of Labor (March 1973). He points out that the notion of hidden unemployment became popular in the context of the business cycle during the early sixties. Hidden unemployed were viewed as persons who wanted work but were not actively looking for it.

several problems about the adequacy of unemployment figures. Was the level of unemployment real or did it reflect poor measuring techniques? The problem of how to determine the line separating the various labour force categories, among others, led in the early 1960's to the first large scale review of labour force classification concepts and methods. In Canada, the Report of the Committee on Unemployment Statistics was released in August 1960. In the U.S., the now famous Gordon Committee was formed to assess the unemployment figures.

The issues raised by these committees, as yet not satisfactorily resolved, centred on the question of how to develop tests of labour force status or, more specifically, determining the criteria for unemployment. Briefly the three problem areas raised were:⁹

- (a) the problem of defining part-time casual and secondary worker status;
- (b) the problem of defining the state of being unemployed. Several sub-questions of key interest here are: (i) if a person is not working, under what terms would he be willing to accept a job if he is to be counted as unemployed. If he is willing to work only at his former wage while a job is available of a lower wage should he be counted as unemployed? (Under neoclassical theory this is the correct operational test to apply.) (ii) what sort of action should be taken by this person to demonstrate availability for work and in what period of time;
- (c) the problem of whether to include unemployables among the unemployed status.

One of the most troublesome questions faced by the Gordon Committee related to the issue of determining what a person should have done to look for work. Not only was there doubt about what constituted work seeking but doubts also existed about how to determine availability for employment.

As well, conceptual difficulties centred on the deficiencies of the employment concept. For example, the definition of employment in the present Canadian household survey is based on work activity or job attachment during a specific calendar week. The survey includes under this definition all part-time workers, regardless of the number of hours worked or the reasons for part-time status. As a result, the number of persons recorded as employed depends upon the time period used to assess status; but, for policy purposes, changes in the dichotomy between part-time and full-time work can

affect policy-makers' assessment of how tight the labour market is.

As well, because the main purpose of the household survey is to determine a person's status for a specific reference period it does not allow for the allocative functions of the labour market. A key element in the complex theoretical treatments of inter-related labour markets is, therefore, basically neglected by the survey. A stock measure of unemployment assumes constant the influence of money wage changes or other income changes on labour supply offered. Hence, in terms of measurement, this conceptual problem results in the labour force figures reflecting a "point on a theoretical labour supply function, not the function itself".¹⁰

A third problem with the existing figures resulted from the fact that no measure of the potential or the quality of the unemployed is given by present procedures, yet clearly they occupy an important role in theoretical models. The extent to which measurement based upon the market place criterion of current activity (but using a natural unit for measurement can reflect theoretical concept) remains an unsolved problem.

In 1967 the United States attempted to implement the basic recommendations of the President's Committee to Appraise Employment Statistics by making large changes in some of their procedures or methods of measuring unemployment in the Current Population Survey. These changes occurred mainly in the approach and type of question asked to extract unemployment data from the basic activity concept. In short, the definition of unemployment was sharpened and clarified in an attempt to clean up the gray areas in labour force status. Specifically, their objective was to obtain a more restrictive definition of unemployment by removing the category of "inactive seeker" from the unemployed. The concept of unemployment "still related to jobless individuals who are currently available for work and seeking work".¹¹ The employment concept was retained with some minor changes.

In retaining the Keynesian-based concept of current activity, the key revisions required to make the unemployment measure more useful and consistent were:

- (a) respecifying the time period for job seeking and asking specific questions on job seeking methods. Availability for work became an explicit condition of unemployment;

⁹ See *Measuring Employment and Unemployment*, President's Committee to Appraise Employment and Unemployment Statistics (Washington, D.C.: United States Government Printing Office, 1962). For a brief summary of the committee's work see Gordon, R.A., "Employment and Unemployment", an article in *International Encyclopedia of the Social Sciences*, D.L. Sills (ed.) (The MacMillan Company and the Free Press, 1968), pp. 49-59.

¹⁰ Ostry, Sylvia, quoted in the Maki background paper to Statistics Canada's Labour Force User Conference, Ottawa, October 1973.

¹¹ See Ross, A.M., in *News*, U.S. Department of Labor, 1966.

- (b) establishing an experimental set of questions for persons not in the labour force to provide new data on select aspects of the size and composition of labour reserves; and
- (c) re-examining the duration of unemployment, hours of work and self-employed status of workers.

These revisions should be viewed as a major alteration in methods of measuring unemployment. Of particular importance is the switch to the direct question approach. Prior to these revisions, the Current Population Survey questionnaire asked of respondents general questions about their primary or secondary activity. Probing or detailed questions were not used. But this procedure only picked up those unemployed who responded to the secondary activity question. By switching to direct question interviewing the revised United States procedures not only instituted a major alteration in the methods of measuring unemployment but also allowed a more precise measure of unemployment to emerge. For this reason the new United States procedures placed the concept of activity in a more definable zone than previous procedures allowed.

Post-1967 Macro-economic or Flow Approach

After the Gordon Committee's recommendations had been acted upon in the United States, empirical developments in the labour market and theoretical developments again interacted to raise further questions about the nature of unemployment. Recent neoclassical theory attempts to classify unemployment by the nature of frictions, uncertainties and motives existing in the economy. Neoclassical theory also points out that the Keynesian-based definitions possess a strong subjective element because no objective survey method existed to distinguish idle workers from the unemployed. Moreover, with frictional unemployment varying with aggregate demand, involuntary unemployment figures based on Keynesian criteria can have only limited relevance to the measurement of any unemployment existing near full employment. Policy-makers, therefore, could no longer ignore the problem of frictional unemployment; the level of frictional unemployment became the new problem to be faced.

To briefly reiterate, the key pressing problem up to the end of the 1950's was to establish the degree of utilization of the labour force at a point in time and the development of a stock measure of unemployment which reflected Keynesian theory was appropriate. However, the changing nature of the unemployment problem during the 1960's pushed considerations towards flow considerations and analysis of the content of the unemployment figure and gave rise to dissatisfaction with the stock based unemployment figure as an economic indicator. To focus more directly on this problem it is useful to briefly discuss why current Canadian estimates do not give information on the dynamics of the labour market or on the movement of the active margins.

The Canadian unemployment figures do not capture the flow process of labour market activity because they are monthly snapshot figures and they are, after all, stock measures. The unemployment rate can be viewed as a product of the frequency and duration of unemployment. Accordingly, this rate can present a good indirect indication of flow behaviour – the change between two stocks of unemployment given sequential monthly labour force figures – only if either duration or frequency is stable over a given period. But monthly labour force figures cannot be related in a meaningful flow way if both frequency and duration may fluctuate indeterminantly. Moreover, utilizing a natural unit of measurement – simply counting bodies – without taking into account the varying labour force composition, or variations in the type of labour service offered as preferences of individuals change, implies an averaging process occurring over all dimensions of the labour market. This automatically conceals any imbalances or uneven unemployment experience among groups and neglects the character of labour market flows. On this point, the revised household survey in the United States (post-1967) does permit better insights into the flow process by collecting information on entrants and re-entrants and reasons for neither working nor looking for work. By utilizing data from this revised survey, recent search models, such as Perry's and Holt's, have "provided an improved structure for analyzing these previously ill understood aspects of unemployment".¹²

Furthermore, a classification by entrants, re-entrants, quits and layoffs has implications for the development of both economic and social policy. As both Hall and Kaitz¹³ have established, large amounts of unemployment among individuals or groups reflect either frequent short spells of unemployment or infrequent long spells. In the second case, the unemployed have a hard time finding a job, whereas in the first case their problem is one of keeping a job rather than finding one.¹⁴ Therefore, an understanding of long term unemployment and who are the long term unemployed is required. The difficulty with duration statistics is that there is no way of telling how much short-duration unemployment is itself the start of long-duration unem-

¹² See Perry, G., "Changing Labor Markets and Inflation", *Brookings Papers on Economic Activity*, No. 3 (Washington: Brookings Institution, 1970).

¹³ See Kaitz, H., "Analyzing the Length of Spells of Unemployment", *Monthly Labor Review*, XCIII, No. 11, U.S. Department of Labor (November 1970), pp. 11-20, and "The Duration of Unemployment" presented at the American Statistical Association Conference, Montreal, Canada, August 14-18, 1972.

¹⁴ To evaluate the implications of the reserve-labour hypothesis we need to know how much of the high turnover in labour force status is voluntary or involuntary, i.e. a reflection of quits or layoffs. If high turnover of employed and unemployed is a problem endemic to the "secondary labour force" then Solow argues that the direct policy implication is that the nature of the jobs offered rather than the characteristics of the unemployed should be changed. See Solow, R., "What Happened to Full Employment", *The Quarterly Review of Economics and Business*, Vol. 13, Summer 1973.

ployment. Since there is no clear correspondence between the average duration of unemployment and structural unemployment, determining what types of unemployment can occur is difficult. Classification by entrants, re-entrants, quits and layoffs enables a partial solution to the problem of identifying types of unemployment.

Solow, however, argues that the new theories' data demands differ from previous theories'. Whereas the old structural unemployment theory wanted improved unemployment data on the inter-relationships of unemployment by occupation, industry and education, the emerging new structural unemployment theories – where demographic characteristics are substituted for skill and education to explain unemployment – require data on the nature and behaviour of labour turnover, in addition to simultaneous classification by age, sex and education.¹⁵

The diverse and conflicting theoretical explanations of the possible causes and sources of unemployment have given rise to different conclusions on what the state of being unemployed involves. Moreover, such theories differ radically in their interpretation of what form legitimate tests of unemployment should take within an activity-based labour force classification framework. Thus, it is appropriate to consider some of the difficulties of adapting the theoretical concepts of recent neoclassical theory for survey use.

Implications of recent neoclassical theory for operational concepts – Neoclassical theory appears to advocate the exclusion of some active seekers from unemployment status if they:

- (a) represent speculative, precautionary (wait) or search unemployed;
- (b) have unreasonable reservation-wage demands, i.e., failure to search in all avenues of job mobility; and
- (c) lack the necessary qualifications for the jobs they are seeking.

Search theory views frictional unemployment as occurring because individuals voluntarily sacrifice present wages for the higher wages of another superior job. Precautionary unemployment is interpreted as an investment cost, the cost of keeping liquid for a new job opportunity.¹⁶

Accordingly, recent neoclassical theory again centres attention on the types of job search considered acceptable, only this time it puts forward reasons for its proposed treatment. Indeed, much of the present

dispute occurring between the Keynesians and neo-classicists over the interpretation of unemployment and the nature of full employment rests upon the alternative view of unemployment creation given by the neoclassical treatment of job search theory. Yet many of the categories of unemployment suggested above are essentially untestable.

A brief discussion of the uncertain areas in recent neoclassical unemployment theory will indicate the difficulties faced in designing operational criteria to allow for these types of exclusions listed above.

Uncertainties exist over:

- (i) Whether the determinants of wage-aspiration levels can be established. Do wage aspirations depend on different skill, occupation or unemployment experiences? Do wage aspirations necessarily decline in any systematic way as unemployment increases? ¹⁷ The problem remaining with the neoclassical definition is that if some, or even all, the unemployed are indifferent between employment and unemployment at a given real wage, are they voluntarily unemployed? ¹⁸ Hence, a key operational problem of the neoclassical treatment of unemployment lies in the fact that no acceptable evidence could be developed to exclude from the unemployed those persons who, while declining a job, were still looking for work.
- (ii) How does the job search proceed? Here uncertainties exist due to data deficiencies.¹⁹ For example, what are the characteristics and behaviour of successful job holders as compared with job changers? To what extent does job changing lead to unemployment? Among which groups in the labour force? How important is voluntary job changing as a reason for unemployment? Is there a stable sequence of job search methods?
- (iii) What factors determine when job search stops? For example, present United States procedures do not establish how many people become "discouraged" after looking for work without success for some

¹⁷ Data are needed to investigate directly the relationship between unemployment and workers' labour supply function: specifically, if: (a) the unemployed are willing to accept a lower wage and (b) asking wage declines over duration of unemployment. See Kasper, H., "The Asking Price of Labour and the Duration of Unemployment", *Review of Economics and Statistics*, XLIX, No. 2 (May 1967).

¹⁸ See Bronfenbrenner, M., *Income Distribution Theory* (London: John Wiley and Sons, 1972).

¹⁹ Bradshaw remarks that in the revised United States Survey, only the methods mentioned by the respondent are noted even though other ways may have been tried. A true measure of job search intensity is not available because: (a) there is not information on total time spent on job hunting, or upon the combination of methods used and (b) the data do not yield any information on which job search methods are effective since questions are asked only of the current unemployed. See Bradshaw, T., "Jobseeking Methods Used by Unemployed Workers", *Monthly Labor Review*, XCVI, No. 1 (February 1973), pp. 35-40.

¹⁵ *Ibid.* pp. 7-20.

¹⁶ See Phelps, E., *Inflation Policy and Unemployment Theory* (New York: W.W. Norton, 1972). Phelps notes that, of the types of unemployment distinguished, only speculative unemployment could not be considered a sub-category of "involuntary unemployment" as Keynes defined it.

time. How many were discouraged without having looked at all? Without information on the intensity or the frequency of different search techniques, adequate testing of hypotheses concerning job search behaviour given by different market theories is difficult.²⁰

Without knowing either the intensity or the frequency of job search, determining whether "inactive seekers" are voluntarily or involuntarily inactive is impossible. Difficulties exist, therefore, in determining why people shift from one labour force category to another. The Canadian concept does not yield information on either potential work seekers or the effects of production cutbacks, nor does it handle the problem of interrupted work schedules. Phelps also suggests that under conditions of job rationing there may be an involuntary aspect to prolonged job search for openings at the normal wage. Empirically, this has been found to be true of small area and city markets.

- (iv) In addition to the problems associated with the labour force classification concepts, when they are viewed within the framework provided by recent theory, there exist other problems associated with the concept of occupation, industry, unemployment duration, and the concept of part- and full-time workers. These non-sampling size problems occur in the main because the type of information which can be generated from a household survey is limited. For example, data on occupation and industry relate to the last job held, so that there is no way of knowing what type of job an unemployed person is seeking.

Recent theories, therefore, often require impractical tests of unemployment status in addition to demanding data which household based surveys cannot provide.

The uncertainties regarding the application of neoclassical theory outlined above reinforce the value of the Gordon Committee's recommendations that tests of unemployment, involving persons quitting a job to look for another or only accepting certain job offers, or not qualifying for certain jobs applied for etc., not be used for determining a worker's status. If one accepts this position, then, it would not be necessary to accept the neoclassical conclusion that, on average, society should tolerate more unemployment today than in the past.

²⁰ See, for example, the following authors' hypotheses: Alchian, A., "Information Cost, Pricing and Resource Unemployment", in Phelps, E.S., et. al., *Micro-Economic Foundations of Employment and Inflation Theory* (New York: W.W. Norton, 1970); Holt, C., "Job Search, Phillip's Wage Relation and Union Influence: Theory and Evidence" in Phelps, et. al., *op. cit.*; Gronau, R., "Information and Frictional Unemployment", *American Economic Review* (June 1971).

II. Problems and Deficiencies of Activity-based Labour Force Classification Concepts

The following discussion of limitations associated with activity-based measures of the labour force draws upon the experience in the United States with the Current Population Survey. This is done for two reasons. First, the revised Current Population Survey is the most recent attempt to incorporate new theoretical concerns into labour market measurement. Second, it appears that the United States approach will be adopted by Statistics Canada as a model for its Revised Labour Force Survey.²¹

Legitimacy of Job Search as a Test of Unemployment Status

Most conceptual interest since the United States revised its procedures in 1967 has been directed to the questions asked of persons not in the labour force, and to the issue of whether or not these questions do provide useful information. Present Canadian procedures are similar to the pre-1967 approach in the United States whereby "inactive job seekers" are counted as unemployed only when they volunteer the information that they would have been looking for work except for their belief that no work was available.

This approach does not allow for the explicit identification of the category "discouraged workers" (defined as those who did not look for a job because they did not think they could find one or because they were not qualified) into either the unemployed or not in the labour force categories. The Gordon Committee was responsible for the United States' decision to collect and publish data on "discouraged workers" separate from the "unemployed". The purpose of extracting discouraged workers as a group was to distinguish them from the rest of the unemployed.

Nevertheless, this procedure raised new questions which could not be answered. Attempting to measure discouragement means isolating the subjective phenomena of desire to work and one's perception of the likelihood of getting a job. "Wanting work" has long been recognized as an unreliable concept²² for data collected by enumeration. Yet it is inherently involved in the approach taken in the Current Population Survey to identify "discouraged workers" who are treated as labour force withdrawals. In adopting this approach it was argued that the question of whether discouraged workers should be included in the unemployed category was an empirical matter. "If and when we develop

²¹ See, for example, papers distributed at Statistics Canada's Labour Force Survey Data Users Conference, Ottawa, October 1973.

²² See Lebergott, S., "Measuring Unemployment", *Review of Economics and Statistics* (November 1954).

accurate and meaningful data on the discouraged, it will be time to consider whether they should be included among the unemployed".²³

Objectivity and subjectivity measurement problems – Questions concerning the measurement of attitudes and intentions, such as those posed by measurement of discouraged workers, will always be difficult to resolve. In a market-based economy where individuals' actions are supposed to reflect free choice, the survey procedures adopted, in effect, ask respondents to classify themselves in terms of labour force status. The response of individuals with a weak labour force attachment may vary when their perception of their status changes. Some people when first contacted answer the labour force questions differently than on subsequent visits even though those questions are on activities rather than intentions. This so-called rotation group "bias" is an example of the difficulty found in obtaining a clear cut distinction between objective and subjective questions. The response to labour force survey questions appears to be sensitive to (i) their phrasing and placement, and (ii) the survey structure including the enumerators training and quality control, although the "subjective" questions undoubtedly have the greater sensitivity. Because of this sensitivity, estimates of the number of people in a given labour force status may appear somewhat fuzzy. But, once one adopts a set of procedures, useful time series of the data will result provided the questionnaire and structure of the survey are maintained over time.

Boundary problems – Characteristics of job markets often determine the type of job seeking activity required. Specialized job markets or small area labour markets do not require "information-based" job search activity whereas in large cities such overt action is needed. Yet the answers to the direct questions asked of respondents on job seeking activities is used to determine their unemployment status.

Hence, for small area employment markets based on a single industry, which may be seasonal in nature, the activity-based "search criterion" breaks down as a filter for determining unemployment. As the United States labour force concepts are essentially the same as the present Canadian ones, the grey area in present United States procedures reflects a criticism of the activity concept itself.

Problems associated with the revised United States approach – A number of comments can be made on other problems encountered with the Current Population Survey but, unfortunately, there are not many solutions to offer. It was expected that the revised questionnaire in the United States could affect the various employment and unemployment series in their:

(a) levels;

(b) seasonal patterns; and

(c) cyclical patterns.

No proof exists that business cycle patterns in labour force data have been changed by the 1967 questionnaire, but some difficulty has been experienced in interpreting some of the trends and patterns occurring in post-1967 data. While some of the particular patterns which appear to be occurring may have arisen from the wording of the questionnaire, others are a result of changed operational procedures.

Examples of these effects are the significant drop in unemployment among 16-19 year olds, because of the "availability test", and the suspicion that seasonal patterns were behaving somewhat differently after 1967, particularly for adult women. Because weather-based seasonal employment patterns are more important in Canada compared to the United States, and given the United States experience, it seems reasonable to conclude that there is a definite need for more data and analysis on the Canadian dimension of seasonality vis-à-vis the discouraged worker and hidden unemployment problem.

Classification and Priority Schemes

Both the reference period problem and the priority scheme needed to classify persons with more than one activity require substantial rethinking. Existing procedures provide an inadequate classification system for handling flow unemployment behaviour. For example, if the bulk of persons classified as outside the labour force for unusual reasons reflect persons who will shortly be looking for work, then the usefulness of the distinction between unemployed and out of the labour force becomes questionable. This type of inability to handle flow questions occurs in the revised Current Population Survey in that the question on "reasons for looking for work" is asked only of current unemployed, implying that new labour force entrants must pass through unemployment on their way to becoming employed.²⁴ Because no alternative priority scheme or reference period appears as a plausible alternative to the revised United States approach, there is a need to recognize any limitations inherent in this approach.

Further examples of the problems posed in determining status can be seen in the United States procedures. Questions asked about those in the labour force seeking temporary jobs are restricted to new entrants and re-entrants among the unemployed, whereas all the unemployed should be asked the question whether or not they seek temporary work.

Employment Concept

Another set of conceptual problems relates to the murkiness of the employment concept which, like the

²³ Ross in *News*, *op. cit.*

²⁴ See the Department of Manpower and Immigration's background paper submitted to the Statistics Canada Labour Force Survey Data Users Conference, Ottawa, October 1973.

unemployment concept, has many grey areas. Employment in some cases is a group phenomenon, as in the case of small, family-owned businesses. Operationally this relates to the problem of how to classify unpaid family workers if employment is defined as "a situation in which remuneration in cash or in kind is received in exchange for active direct personal participation in the production process".²⁵ The difficulties faced also in classifying workers on their own account relates to the problem of defining employment. An excellent example is the frequently-cited problem of how to classify a truck driver-owner who is sitting at home waiting to be called for work: is he employed or unemployed? Another aspect of the group nature of employment is the geographic limitations a husband's place of work may impose upon the wife's opportunity to find work. Because of these problems, alternative concepts of employment, under-employment and unemployment based on family characteristics – the family group being considered the economic unit rather than the individual – have been suggested by Mouly and others.²⁶

All of this relates to the present dispute on the correct interpretation of unemployment and the determination of possible sources of unemployment.²⁷ What should be the definition of employment and unemployment in the face of institutional changes in the eligibility rules for unemployment insurance and welfare schemes? While it is doubtful whether the group concept would aid policy decisions, it does indicate that among the first difficulties encountered in measuring unemployment²⁸ is to decide what to measure.

Because the concept of unemployment is somewhat intangible, "how much unemployment is regarded as either acceptable or inevitable depends on what is described as unemployment".²⁹ The dispute over both

the correct interpretation of data and the type of data needed to assess alternative theories reflects the fact that conceptual issues may be raised by both theoretical and empirical considerations. Not only does this point to the need to recognize the frailties of adopted definitions and concepts, but it also makes it difficult to predict future problem areas in any revised labour force survey.

Conclusions

Our concern in this paper has been with tracing out how developments in economic theory have influenced labour force concepts and how these concepts are transferred into operational measures. To recapitulate, the switch from a neoclassical-based conception of the labour market, with an explicit full employment assumption, to the Keynesian model of disequilibrium and adjustment costs in the labour market focused attention on the concepts and types of unemployment. The long unresolved dispute between the structural versus the demand deficient explanation of the level of unemployment was conducted under the ground rules implied by the Keynesian definition of unemployment. No attention was given until the late 1960's to the effects on unemployment of the flows set up by different adjustment processes to varying degrees of disequilibrium. These latter developments in theory that occurred after the revisions to the United States Current Population Survey involved a switch from viewing unemployment as a stock to acknowledging its flow nature.

As a result, the revised Current Population Survey's definition of activity can only partly reflect this changing theory.

The discovery of new patterns of explanation, however, frequently require the development of a new ruling theory with consequent impact upon measurement. Hence, the major insight resulting from this paper is the realization that both the unemployment and employment figures are essentially creatures of economic theory. Observation and fact finding are a theory-laden undertaking. Theories provide the frameworks within which data appear intelligible. Thus, not only are observations and data built up into general systems of explanation but systems based on economic theory are also built into one's observations and appreciation of data.³⁰ As a result, Keynesian and the new neoclassical theories, although they appear to have a similar theoretical structure, do provide a different frame of reference for interpreting statistics. For this reason, it is true to say that without the information needed to establish the degree to which concepts can make economic statistics uncertain we "cannot make the division between what we really know and what we think we know but we don't".³¹

²⁵ Mouly, J. "Some Remarks on Concepts of Employment, Underemployment and Unemployment", *International Labour Review* (February 1972).

²⁶ Mouly, *ibid*.

²⁷ This varies between different theories and between different interpretations of empirical evidence. Consider the statements of Perry, Hall and Mincer compared with Friedman's statement as given in the January 31, 1972 issue of *Newsweek*.

Friedman criticized the use of an aggregate unemployment figure as a numerical goal of economic policy. He argued that the size of the unemployment pool is unimportant as long as the unemployed were not suffering but were being retrained for more productive work. See Friedman, M., *Wall Street Journal*, February 3, 1972.

²⁸ Moore notes that the recent *President's Commission on Federal Statistics*, Vol. 1, 1971, p. 75 argues "methods that yield the best estimate of the level of a variable such as unemployment do not necessarily yield the best estimate of its change. The Commission recommended that attention be given to more precise estimates of change even though these might be inconsistent with changes derived from the best estimates of level". See Moore, J., "On the Statistical Significance of Change in Employment and Unemployment", *Statistical Reporter* (March 1973), p. 138.

²⁹ See Wood, J., *How much Unemployment: The Methods and Measures, Dissected*, Research Monograph No. 28 (London: Institute of Economic Affairs, 1972).

³⁰ Hanson, N.R., *Patterns of Discovery* (Cambridge, England: Cambridge University Press, 1969).

³¹ Coddington, A., "Economists and Policy", *National Westminster Bank Quarterly Review* (February 1973).

ERRORS ASSOCIATED WITH GROSS FLOW ESTIMATES

S. Bertrand*

Introduction

Each month Statistics Canada produces estimates of employment, unemployment and labour force participation on the basis of a sample of households. These are stock measures and are useful for monitoring changes in the size of the labour force and its component parts (employment and unemployment), but because they are net measures they do not provide any information on the sources of month to month changes. For example, a change in unemployment between two months of 30,000 could be attributable to the following types of movements: 60,000 persons moved from employment to unemployment, 50,000 moved from unemployment to employment, and 20,000 persons entered the labour force to look for a job. The types of changes just described are known as gross movements and are defined

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as the month to month flows of persons between various states (employment, unemployment, labour force and not in the labour force).

The matrix shown in Table 1 shows the relationship between gross and net movements in a more precise way. From this matrix the following relationships for unemployment can be constructed:

$$\text{persons unemployed in } t-1 = U_{t-1} = U_e + U_u + U_n;$$

$$\text{persons unemployed in } t = u_t = E_u + U_u + N_u;$$

$$\text{net movement in unemployment} = \Delta U = u_t - U_{t-1};$$

$$\text{by substitution, } \Delta U = (E_u + U_u + N_u) - (U_e + U_u + U_n).$$

The net change in unemployment between two months, ΔU , may be small but the gross movements underlying the net change can be very large. Since it is possible to construct the same relationships for each characteristic, the analytic value of gross movements data is obvious.

TABLE 1. Matrix of Gross Movements

Status in month t-1	Status in month t			Total
	e	u	n	
E	E_e	E_u	E_n	E_{t-1}
U	U_e	U_u	U_n	U_{t-1}
N	N_t	N_u	N_n	N_{t-1}
Totals	e_t	u_t	n_t	

E, e = employed.

U, u = unemployed.

N, n = not in the labour force.

While gross movements data are produced each month by Statistics Canada, they are not released because there are a number of sources of bias associated with these data that lead to a lack of consistency with the stock estimates. The sources of bias are reviewed in this article and alternative methods of calculating gross flow data are discussed. Also, the problem of error additivity associated with the data is examined and a number of suggestions are made on further research to obtain a better understanding of the errors associated with gross movements data.

Alternative Estimation Methods

A sample of approximately 30,000 households is used in the Monthly Labour Force Survey. A household remains in the sample for six consecutive months and approximately 5,000 households enter and leave the sample each month. The labour force status of all individuals 14 years of age and over in the sample households is determined through the survey. Gross movements can be calculated in two ways. First, the

movement of an individual can be determined by comparing the status he declared in one month with that of the preceding month, the **matching method**. This method gives estimates for only 5/6 (maximum) of the sample because of the rotation system, that is, the 5,000 households entering the sample in each month cannot be matched. Second, a person who has reported his status for one month can be asked to recall his status in the previous month, the **recall method**. The principal disadvantage of this method is that people have a tendency to declare that their status in the previous month was the same as in the current month. This phenomenon results in the most important systematic bias in the results obtained by the recall method.

Sources of Error

Gross movements data can be subject to bias associated with population change in the sample, non-response, matching bias attributable to identification errors and response variability. Each of these is discussed in more detail later.

Population Change Bias

Gross movements data obtained from either the matching or recall method are subject to population change bias. This bias occurs because some changes in the labour market between two months are accounted for by immigration or by individuals who reach age 14 while others leave as a result of death or emigration and gross movements data does not take these population changes into account. The bias attributable to these population changes is difficult to determine because of the co-existence of sampling variability, that is, one does not know the extent to which observed changes in stock estimates between two months is attributable to population change relative to sampling variability. This is not a serious problem, however, because population change does not have a decisive effect on the reliability of the estimates.

Non-response Bias

The bias in gross flow data associated with non-response depends on the method used to compensate for units who were chosen to be in the sample but who did not respond. The present method introduces a bias because it compensates for non-response at the household unit level, while, ideally, for gross movement estimates one should compensate at the individual level because gross movements are obtained by matching individuals rather than households.

There are three causes of non-matchability:

1. non-response at point in time $t-1$ and (or) at time t ;
2. rotation of households into the sample;
3. coding errors.

To completely compensate for non-matchability it would be necessary to allow for all three possibilities; but the present system compensates for non-response only at time t . As a result, a bias is introduced into the gross movement estimates.

Matching Bias

A matching bias arises when interviewers make identification errors. For example, take a situation where there are two sons in a family unit, one is employed and the other is a student and the interviewer makes an error by interchanging the identification numbers of these two sons from one month to the next. Since the matching method consists of comparing an individual's status in the current month and the previous month, this error gives rise to two false movements; one individual leaves the labour force (employed) and returns to school and a second leaves school to enter the labour force and becomes employed. The bias is obvious.¹

The present method of matching introduces some bias into gross movements estimates because only the

identification number is used for matching. It would be possible to correct this bias by using a matching method that takes into account not only the identification number of an individual, but also age, sex and relationship to the head of the household. When these four criteria all match, it would be practically impossible to compare different individuals.

Response Variability Bias

Response variability can occur as a result of persons misunderstanding the questions used in the survey.² What is usually called "rotation bias" also falls within the category. This refers to the process whereby a respondent develops a better understanding of the questions after being in the sample for one or two months and, consequently, gives different responses to the questions. Errors attributable to response variability are not peculiar to gross movements data. They also occur in stock estimates, but the errors tend to cancel out in stock estimates. In contrast, it is believed that these errors are additive in the case of gross movements estimates, and this is the prime reason why these estimates are not considered reliable.

Estimates based on recall data are subject to both response variability bias and recall errors. The latter occur through faulty memory when persons recall their labour force status in the previous month and because of a tendency for persons to declare the same status for the previous month as the current month. This phenomenon results in the most systematic bias in gross flow data obtained through a recall question and creates an over-estimate in the elements of the principal diagonal in the matrix of gross movements.

Effect of Response Variability on Matched Data

Response variability errors may be measured with the help of a quality control program (re-interview). By comparing the results of a re-interview with those of the original interview, this error is measured by calculating the net difference rate (NDR) and gross difference rate (GDR).³ A re-interview program is in existence in Canada and the GDR and NDR are calculated monthly. This program, however, was implemented principally to control the quality of new interviewers and cannot be used as a measure of the quality of the survey results as a whole.

² A related aspect is the "proxy respondent" problem whereby errors can arise because one member of the household responds to the questions on behalf of other members of the household.

$$^3 \text{NDR} = \frac{(B - C)}{A + B}$$

$$\text{GDR} = \frac{(B + C)}{A + B}$$

A = Number of cases in which the re-interview is identical to the interview.

B = Number of cases added to a category by the re-interview.

C = Number of cases removed from a category by the re-interview.

¹ It has been estimated that approximately 3% of month to month comparisons are faulty.

However, this type of program is used in the United States' Current Population Survey as a measure of quality. Based on this program, it has been observed that the NDR was small and that estimates of stocks were not significantly biased by this type of error because of its tendency to cancel out. It was also observed that the GDR was relatively high. For example, in the case of unemployed persons it was about 20%, whereas the rate of gross movements calculated in the same manner was 100%. Relating these two percentages, it was concluded that gross movements data were not reliable due to the principle of error additivity in estimates of flows.⁴ This argument is one of the principal reasons why gross movements data are not generally considered reliable.

Effects of the Rotation System

Response variability due to the rotation system creates a special type of response bias which is related to the conditioning of respondents over the six month period they are in the survey. Some people respond differently to the questionnaire depending on whether they are being interviewed for the first time, second time, third time, etc. For example, in the United States it was observed that the unemployment rate was higher amongst persons being interviewed for the first time

than amongst those being interviewed for the second through the sixth times. This phenomenon resulted in an exaggeration of the number of withdrawals from the labour force between the first and second comparison months.⁵

It is easy to see that rotation bias can have a very strong impact on the reliability of gross movements estimates. Accordingly, analysis of this phenomenon is pursued a bit further with Canadian data for 1972. Since the data are weighted, the reader is alerted to the possibility that the weighting bias described earlier may have affected the results obtained. Monthly gross movements by rotation group were estimated for each possible movement. The results for five rotation groups are shown in Table 2. For the five rotation groups the following matched interview months were used: 1.2, 2.3, 3.4, 4.5, 5.6. The problem is to determine whether there is a different number of persons, for a given movement, in each matched rotation group. For example, if one concludes that there is the same number of persons who made the movement $E_{t-1} \rightarrow U_t$ in each of the five rotation groups, one would also conclude that rotation bias does not affect this movement. Table 2 suggests that movements within the labour force (movements between E and U) are not much overestimated or underestimated from one rotation group to another,

⁴ Hilaski, H.J., "The Status of Research on Gross Changes in the Labor Force", *Employment and Earnings*, United States Department of Labor (October 1973), pp. 6-13.

⁵ Pearl, R.P., "Gross Changes in the Labor Force: A Problem in Statistical Measurement", *Employment and Earnings*, United States Department of Labor (April 1963).

TABLE 2. Gross Movements by Matched Interview Months Expressed as a Percentage of the Average of All Matchable Interview Months, 1972

Labour force movement	Total	Matched interview months				
		1.2	2.3	3.4	4.5	5.6
		Rotation group				
		1	2	3	4	5
Population 14 + to: $t-1$ and t	100	98.2	100.9	100.6	100.0	100.3
Employed at t : E_{t-1}	100	97.2	100.7	100.7	100.4	101.1
U_{t-1}	100	101.8	103.3	98.2	97.4	98.9
N_{t-1}	100	106.0	102.9	100.0	96.2	94.4
Unemployed at t : E_{t-1}	100	101.4	99.7	99.7	101.4	97.3
U_{t-1}	100	98.9	101.3	100.4	100.3	98.9
N_{t-1}	100	110.7	102.3	92.6	103.7	90.4
Not in the labour force at t : I_{t-1}	100	108.8	105.2	100.3	94.3	91.7
U_{t-1}	100	117.8	96.0	96.0	93.4	102.1
N_{t-1}	100	98.0	101.0	100.7	100.1	100.2

E = employed
U = unemployed
N = not in the labour force.

which implies an absence of serious rotation bias. Movements into and out of the labour force (movements between N and E, N and U), however, are subject to large variations from one rotation group to another which implies significant rotation group bias. These implications were tested statistically by using each pair of months as an observation. The object of the tests was to determine whether there is a significant difference between the matched rotation groups. Analysis of variance, X^2 test, and a test on the sign of the differences were conducted at a 5% confidence level, and for each of the possible movements the following hypotheses were put forward:

H0 → There is no difference between rotation groups, and hence no rotation bias.

H1 → There is a difference between rotation groups and hence a rotation bias.

The results of these tests are shown in Table 3.

The tests tend to confirm the conclusions drawn from examining Table 2. They support the presence of rotation group bias in movements between E and N and U and N. There was one unexpected result; the presence of rotation group bias is supported in the movement $E_{t-1} \rightarrow E_t$. Multiple comparisons show, however, that in this case there is a difference only between rotation Group 1 and the others; that is, there is no difference between Groups 2, 3, 4 and 5 (see Table 2). This raises the possibility that the homogeneity of Groups 2 to 5 in conjunction with the slight difference between them and Group 1 results in the statistical test providing support for the existence of a significant difference between the groups, but it does not imply the existence of a rotation group bias problem.

TABLE 3. Results of Statistical Tests for Differences Between Rotation Groups

Movements $t-1 \rightarrow t$	Analysis of variance	X^2 Test	Sign of the differences
I → I	X	X	X
E → U	:	:	:
E → N	X	:	X
U → I	:	:	:
U → U	:	:	:
U → N	X	:	:
N → E	X	X	X
N → U	:	:	:
N → N	:	:	:

An X indicates rejection of H0 and thus acceptance that rotation bias is present.

Summary

To summarize, gross flow estimates are subject to a number of sources of errors and some of them are more easily corrected than others. For example, matching bias that arises from identification errors could be substantially removed by using demographic characteristics in addition to an identification number when matching individual records and non-response bias could be corrected by using an adequate compensation system for non-response in gross flows estimates. With respect to rotation group bias, it has a serious impact on estimates of movements into and out of the labour force. While it has not been possible to demonstrate it empirically, response variability not attributable to the rotation system appears theoretically to be the most important source of bias in gross flow estimates. To

obtain an adequate understanding of how these errors are distributed and how they bias the estimates, it would be necessary to undertake a re-interview program designed specifically for this purpose.⁶ While some of the present problems are difficult to overcome, the future for gross flow estimates is promising because of the new questionnaire that will be introduced as part of the Labour Force Survey Revision. The revised questionnaire will be much more structured and should lead to a reduction in response variability with a consequent improvement in the reliability of gross flow estimates.

⁶ As noted earlier in the article, the present re-interview activity is used primarily as a check on the work of new interviewers and it does not allow information on the same respondent for two consecutive months.

PRIVATE PENSION FUND RESERVES

Harry Weitz*

Introduction

In Canada a system of both public and private pension programs has been developed to provide income support during the years of retirement. The public component is primarily a combination of the universal Old Age Security benefit and the wage-related Canada/Quebec Pension Plan (C/QPP). The public income sources are supplemented by the private component made up of the pension plans run by employers on behalf of their employees. Private plans have grown at a tremendous pace over the past three decades or so, and with the vast pool of funds accumulated in their reserves they have become a major financial institution in Canada and have a considerable impact on the basic economic processes of savings and capital formation. This article will be confined to a study of the fiscal operations of these private plans and their participation in the capital markets.

Historical Background

Since their inception, the growth pattern of pension plans and their funds has been due to a number of factors. Evolutionary social and economic developments in the twentieth century, and more particularly over the past three or four decades, have produced significant changes in patterns of work and leisure. Over this period population shifted from countryside to city as industry replaced agriculture as the primary employer. Industrialization combined with improved technology to increase labour productivity and create a flow of goods and services capable of supporting a standard of living to surpass all previous levels. Concurrently, scientific and technological developments increased life expectancy. Within this longer life span the ratio of work to leisure changed dramatically, work-life expectancy decreased and non-working years increased. Juanita M. Kreps in a recent study points out that in advanced industrial countries, the major declines in lifetime working years appear at the beginning and the end of the work-life span.¹ Young people tend to spend more time at school and in training, while at the end of the spectrum, older workers tend to leave the labour force at an earlier age which gives them a longer period of retirement.

In a paper prepared for a conference on aging held by the Canadian Welfare Council in Toronto, January 1966, Sylvia Ostry found that the average retirement period in Canada had doubled since the turn of the century and concluded that, barring any radical institutional or economic upheavals, the decline in years of

working life and increase in the retirement period is likely to be a continuing pattern.² This trend towards shorter working-life expectancy is reflected by the declining rate of labour force participation by the older population. Fewer persons are remaining in the labour force after their 65th birthday. In 1941 less than half of the men aged 65 or over were in the labour force; twenty years later less than one third participated, and in 1973 the rate had fallen still further with less than one fifth economically active. This increasing proportion of the population over age 65 who are not economically active have a substantial number of non-working years ahead of them. According to the Canadian Life Tables a man aged 65 can expect to live almost another 14 years, and a woman of the same age, 16 years. Leisure at retirement therefore is no longer a short-term phenomenon; indeed, the lengthening retirement period introduces a new life stage bringing with it pressing economic problems, not the least of which is to provide some continuing source of income over the last decade or so of the normal life span. Arising out of these developments is the increase in formal, systematic, private arrangements to provide a means of support over the lengthening retirement years.

The private pension system in Canada is of relatively recent origin experiencing its major growth during and since World War II.³ Until 1966 when the Canada/Quebec Pension Plan (C/QPP) was first introduced, private plans were the only wage-related pension programs available. As such, private pension programs have become an increasingly important element in the total pay package. Over the past decade alone pension plans have increased from 8,900 in 1960 to over 16,000 plans by the beginning of 1970, while over the same period membership grew from 1.8 million to over 2.8 million workers. In terms of the total labour force, however, coverage remains rather limited. Presently only about one in three paid workers participates in an occupational pension plan.

² See Sylvia Ostry, "Labour Force and Employment Patterns" in *The Economic Status of the Aging* by Sylvia Ostry and Jenny Podoluk, Statistics Canada (Ottawa: Information Canada, 1966), p. 22.

³ For purposes of this study the private pension component in Canada is composed of all group occupational plans operated by employers, groups of employers, unions, religious and charitable organizations as well as plans designed for employees of all levels of government. Thus the federal superannuation plan covering federal employees, the Armed Forces and RCMP plans, pension plans for employees of boards, Commissions and Crown corporations as well as those for provincial or municipal employees are all included in this category. Specifically excluded are the Canada/Quebec Pension Plans as well as the individual savings programs known as "Registered Retirement Savings Plans", contributions to which enjoy the same income tax deferral privileges as do pension contributions.

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¹ Juanita M. Kreps, *Lifetime Allocation of Work and Income, Essays in the Economics of Aging* (Durham, North Carolina: Duke University Press), p. 64.

Role of Private Pension Plans in the Economy

Notwithstanding their relatively limited coverage private pension plans have come to assume a significant role in the economy. Well over \$750 million annually is paid out to retired workers, and as time goes on and pension plans organized in the past few decades come into maturity, this payment can be expected to increase dramatically. Payments of this magnitude require the systematic accumulation of funds and cash flows have indeed been enormous. In 10 years total contributions have more than doubled from \$800 million in 1960 to over \$1.7 billion in 1970. The magnitude of these fiscal flows comes into sharper focus when it is realized that the \$1.7 billion in contributions was by and on behalf of the one third of the paid workers in private plans while virtually the entire labour force contributed \$1.2 billion to the C/QPP in the same period.

In economic terms pension plan contributions represent a major share of personal savings. In a study published in 1968, Roger F. Murray concluded that pension savings represented a net addition to personal savings. He also pointed out that participation in a plan stimulated further savings because of the "recognition effect"; that is, the participant "recognizes that a reasonable degree of financial independence in retirement is attainable for him when a program is made available to him in addition to his social security income prospects."⁴ Recognition thus motivates additional savings because of the realization that financial security is possible. Murray quotes a study by Phillip Cogan in which it was found that the recognition effect tends to be more pronounced in contributory than in non-contributory plans. This conclusion is of particular importance to Canada because most plans in this country are contributory, so that the savings for pension purposes can be assumed to be a net addition to other personal savings.

Since these plans represent such an important element of personal savings their administration takes on special significance. Participants are concerned that enough funds will ultimately be available to them when they are ready to retire and cash in on their savings, and

so administrators are charged with the responsibility of handling these funds to maximize the return on investment. Finally, when these savings are channelled into investments they have an enormous impact on capital markets. Pension funds not only perform the role of a savings medium but they also act as a financial intermediary which channels these vast accumulations into the capital markets. In recent years pension funds have become a major institutional investor and it appears that they will become an increasingly important source for investment capital in future years.

Funding Agency

Pension funds are of course not all alike and the way they participate in the capital markets can vary widely. To a large extent their role as a financial intermediary is determined by the type of funding agency used in the accumulation and management of the funds. Broadly speaking, the 16,100 plans are classified into three main funding agency categories: insured, trustee and government consolidated revenue funds.

Insured Plans

Insured plans are those funded by premium payments to a life insurance company and as can be seen in Chart 1, they constitute the largest category in terms of number of funds. Nearly 70% of the plans in force are insured, but these tend to be the smaller plans and cover less than 15% of the members — 398,700 persons out of a total of 2.8 million. Over two thirds of the insured plans had less than 15 members each and the largest fewer than 10,000 members.⁵

Trusteed Plans

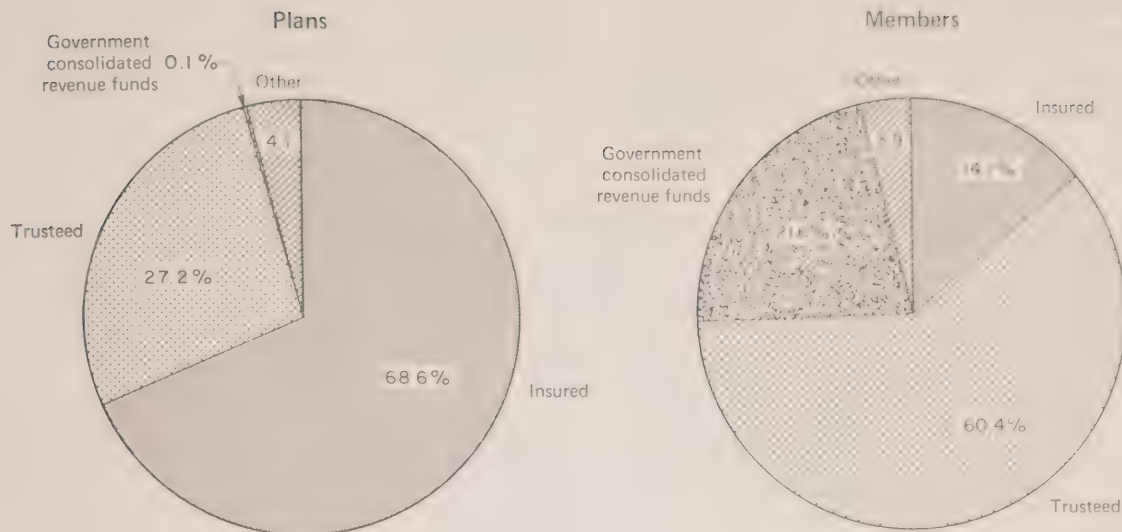
Whereas typically most small plans tend to use insurance companies as the funding agency, large ones use the trust arrangement. About one quarter of all private plans use this method for the management of their funds but they account for nearly two thirds of the members, some 1.7 million persons in all. Trust companies are funding agencies for three out of four of these plans and most of the balance are managed by the companies themselves. With accumulations of over \$12 billion in assets at book value in 1971 and a current average growth rate of nearly 12% annually, they represent the most significant group in terms of coverage, annual contributions, and growth of accumulated assets.

⁴ Roger F. Murray, *Economic Aspects of Pensions: A Summary Report*, National Bureau of Economic Research Inc. (New York: Columbia University Press, 1968), p. 58. In this context Murray refers to a study by Phillip Cogan, "The Effect of Pension Plans on Aggregate Savings", NBR (New York, 1965). In a paper *The Effect of Pension Plan Membership on the Level and Composition of Household Wealth* prepared for a Financial Brokers Conference in Toronto in 1968, Prof. W.R. Waters presents the first tentative contradictory conclusions to those reached by three other researchers, one Canadian and two American, saying "portfolio adjustments to accommodate pension wealth appear to take the form of an across-the-board reduction in the quantity of all other assets held". He does, however, point out that this is a tentative conclusion which could be revised on further study.

⁵ *Pension Plans in Canada, 1970*, Statistics Canada (Catalogue 74-401 Biennial) (Ottawa: Information Canada), p. 14.

Chart — 1

Plans and Members by Funding Agency



Government Consolidated Revenue Funds

The smallest category in terms of plans — only 19 in all — is the group classified as “Government Consolidated Revenue Funds” which includes some of the largest plans in the country such as the Federal Superannuation Plan, the Armed Forces, RCMP, provincial employee plans in some of the largest provinces, etc. Together they account for nearly 608,000 participants, some 22% of all members in Canada. As the name implies, all contributions are paid into the Consolidated Revenues of the applicable governments and the funds are used for general government purposes. Characteristically, these plans have no invested assets in the superannuation accounts and none of the funds are channelled into the financial markets. However, funding within this group varies widely from plan to plan.

For example, in the Federal Superannuation Plan, one of the largest employer-employee plans in the country, the Government not only matches employee contributions but also credits the superannuation account with interest and assumes responsibility for any actuarial deficits. The amounts held in this account are not in the form of cash or invested securities but are paid into the government's Consolidated Revenue Fund. The government thus uses all the money for general government purposes and credits the account with interest quarterly for its use. The government's contributions are recorded as budgetary expenditures and these

amounts are raised through taxes. The interest paid on the accounts is recorded and charged in the same way as interest paid on bonds, that is the government's undertaking to pay both pension benefits and bond redemptions is recorded in the statements of Assets and Liabilities in the Public Accounts.

Benefits payable are guaranteed as a right by legislation just as are the payments in respect of Government of Canada bonds. Although bonds are not actually issued for the superannuation account, the government commitments and guarantees have the same force as if bonds had been issued. Current excesses of receipts over disbursements not needed for immediate payment of pensions are invested in book liabilities of the Government of Canada and are used for general purposes of the Government of Canada similar to the proceeds from the sale of government bonds and earn interest at the same rate as long term government bonds.

While similar funding principles are followed by some of the provincial plans in this general category, a few use other funding methods. For some, the government commitment covers only the shortfall between contributions from employees and benefits paid out to pensioners. If employee contributions are equal to, or greater than, the payout in benefits, the government makes no contribution and will deposit any excess into their consolidated revenues.

Pension Funds with Invested Assets

As noted above, the government consolidated revenue fund plans do not participate in the capital markets and consequently investment activity is limited to the insured and trustee plans. These two categories over the years have generated considerable reserves.

As shown in Table 1, their holdings quadrupled and in aggregate some \$12 billion were channelled

through the capital markets over the 1960's. Obviously, then, private insured and trustee pension plans have become important financial intermediaries. Their role in the financial markets, particularly the kinds of financial instruments they buy, varies according to the type of funding agency controlling the funds. Investment policies for the insured plans tend to be different from those of the trustee plans which makes it necessary to analyse their portfolios separately.

TABLE 1. Reserves of Insured and Trustee Funds, Book Value, 1960-71

Year	Book value of insured and trustee funds	Distribution by type of funding	
		Trustee	Insured
	millions of dollars	per cent	
1960	4,791	75	25
1961	5,433	74	26
1962	6,136	74	26
1963	6,945	74	26
1964	7,873	73	27
1965	8,968	73	27
1966	9,880	73	27
1967	10,954	74	26
1968	12,122	74	26
1969	13,373	75	25
1970	14,742	75	25
1971	16,830	75	25

Insured Plans in the Capital Markets

Insured plans may be underwritten by a variety of individual and group contracts with an insurance company. These may range from a fully insured arrangement to the deposit administration or segregated fund arrangement whereby the adequacy of the fund to meet the costs of the benefit is not guaranteed. For purposes of this analysis the form of the contract is not material since the primary consideration in this context is the actual process of mingling the funds from this source with all other insurance company income for use in the capital market. (The only qualifications are the "Segregated Funds" which will be discussed later.) When funds from different sources are co-mingled it is impossible to identify separately how pension funds were invested. As a result, for this part of the analysis it is necessary to assume that the insurance companies' investment strategy also reflects their application of income from their pension business.

The main concentration of insurance company investment has been in mortgage loans and real estate. Investments in these areas accounted for about 45% of their total portfolio in 1971, while investments in bonds and debentures constituted approximately 35% of their portfolios. Stocks play a minor role in their general investment strategy with only about 8% allocated to this

type of investment.⁶ As noted earlier it is assumed that this pattern also reflects the allocation of pension funds.

Although insurance companies do not carry the bulk of the pension business in Canada, they have nevertheless experienced considerable growth in pension accounts. In 1960 the book value of insured pension fund assets was estimated to be \$1.2 billion and by the end of the decade they had grown to over \$3.1 billion. With the emphasis in mortgage lending, pension arrangements through insurance companies have made a major contribution to the expansion in the stock of housing.

One phase of the insurance company pension business that falls outside the pattern discussed above is the group classified as Segregated Funds which allows insurance companies to diversify their pension business by offering clients a vehicle for unrestricted investments in equities. They were first introduced in 1961 when federal laws were amended to free insurance companies from the restrictions which applied to their investments in common stocks. The funds, however, must be segregated from regular insurance and annuities business, hence the name "Segregated Funds".

⁶ Report of the Superintendent of Insurance for Canada, 1972, Volume 1, page 22A.

Since their introduction in 1961 these "Segregated Funds" were used primarily for group pension business, but recently they have been used to develop other forms of contracts as well. Some life insurance companies are offering life insurance policies that have variable benefits related to the value of the company's segregated funds. Also, these funds are used for the registered retirement savings plans sold by insurance companies.

In their ten years of existence segregated funds have shown a tremendous increase with the book value

of accumulated assets reaching nearly \$827 million by 1971. Over half of these funds were invested in common and preferred shares; 25% of the portfolios were in bonds concentrated largely in corporate issues with little in government securities other than about 4% in provincials. Of particular interest is the fact that over 18% of the assets were in mortgages, far lower than the proportion of the main body of insurance company investments, but a much higher ratio than in the trustee plans.

TABLE 2. Asset Distribution of Segregated Funds, 1971

Assets	Book value	
	\$'000	%
Bonds	207,460	25.1
Stocks	424,277	51.3
Mortgages	152,938	18.5
Real estate and leasebacks	1,304	0.2
Miscellaneous	40,921	4.9
Totals	826,900	100.0

Source: *Trusteed Pension Plans, Financial Statistics*, Appendix B, Statistics Canada (Catalogue 74-201 Annual) (Ottawa: Information Canada).

Trusteed Funds and Their Investment Patterns

Trusteed funds have attracted a great deal of interest and discussion in recent years and small wonder! About three quarters of the invested assets held by private pensions are concentrated in the trustee funds (see Table 1), and with a net annual cash flow at well over one billion dollars since the late 1960's their investment activities are big business in the financial markets. With a cash flow of this magnitude, the total value of assets held by these funds has been climbing steadily. Over the past twelve years there was more than a threefold increase in assets from \$3.5 billion in 1960 to over \$12.4 billion in 1971 (see Chart 2). This continuing growth rate is significant in that the Canada/Quebec Pension Plan introduced in mid-decade (1966) has relatively little dampening effect on overall asset growth. During the first half of this period the funds increased at an average annual rate of nearly 13% but in 1966 when the Canada and Quebec Pension Plans were introduced it dropped to 11%. In real terms, the net year to year increase in book value of assets ranged from \$416 million in 1960 to over half a billion dollars in 1963 and by 1971 trustee pension funds were increasing by over \$1.4 billion a year. With accumulations of this magnitude trustee pension funds have been heavy purchasers of corporate securities, government bonds and mortgages, and are generally a major source

for new capital investment. They have become one of the fastest growing financial intermediaries in the country and their projected continuing growth assures them of being a major force in the financial markets for some time to come.

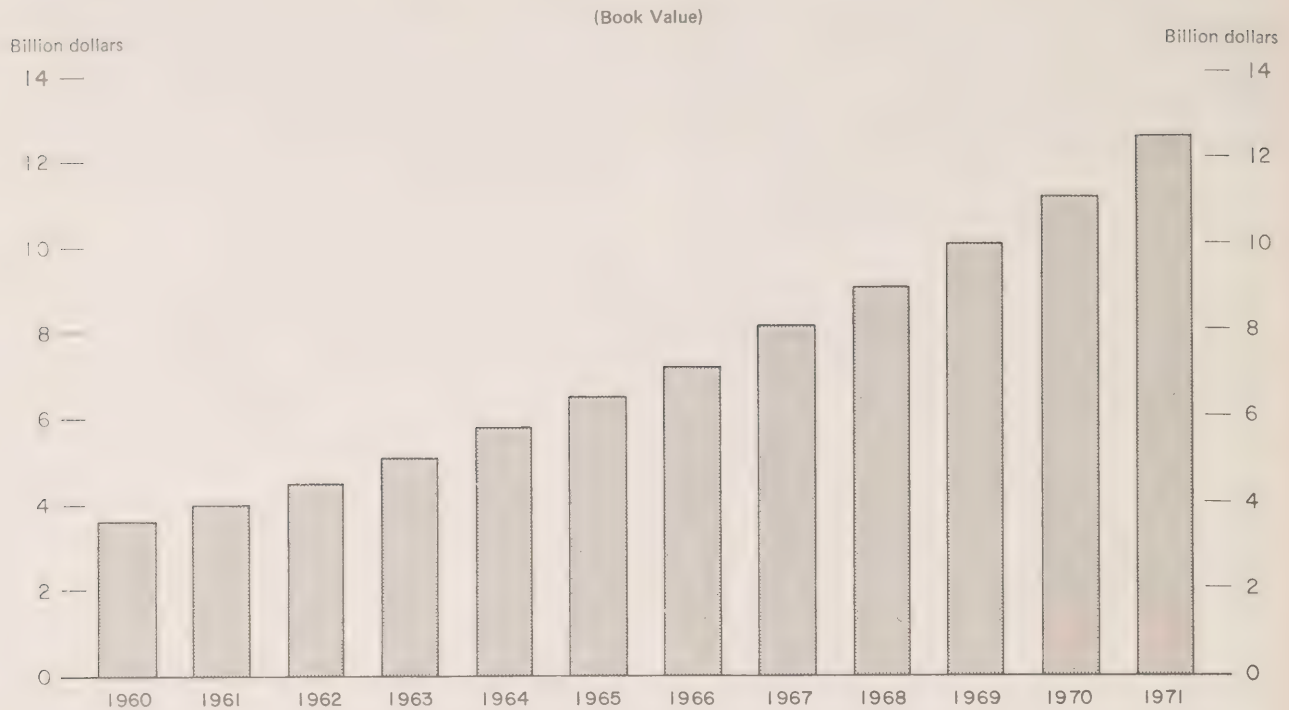
The pension trust, in essence, is a bundle of assets managed to provide maximum returns with minimum risk over a long term to meet commitments already made or likely to be made in the future. One would expect that with a common objective, a distinctive pension portfolio profile would emerge, but consistency does not prevail. Investment management is not a science and, therefore, investment policies and results vary widely according to assessments of individual managers.

Perhaps the most impelling factor underlying investment policy and the ultimate aggregate pattern of investment is the size of fund, and in this respect, the range is wide and the effects far-reaching.

Characteristically, trustee pension plans in Canada consist of an overwhelmingly large number of very small funds and relatively few large ones. For example, out of nearly 4,000 trustee pension funds in operation during 1971 only 731 funds had portfolios valued at \$1 million or over (at book value) but in

Chart - 2

Assets of Trusteed Pension Funds, 1960-1971



aggregate these 731 funds accounted for nearly 95% of the \$12 billion held by trusteed pension funds (see Table 3). In other words, most of the pension reserves are concentrated in relatively few large funds, and some are very large indeed. Although two thirds of the 731 funds have assets of between \$1 million and \$5 million each there are as many as 23 funds with holdings of over \$100 million, with individual portfolios in this group ranging from \$100,700,000 to \$896,500,000. As may be seen in Table 3, these 23 pension funds accounted for nearly half of the total assets accumulated in trusteed funds. By contrast, just under \$570 million which represents 5% of

all trusteed pension fund reserves, is held by a total of 3,215 funds. The bulk of the trusteed funds, therefore, tend to be small with an average portfolio of approximately \$176,000. This pattern has prevailed for some time, and over the years pension reserves have increasingly been concentrated in the larger funds with assets of \$1 million or over. Indeed, in the past few years large funds have gradually increased their share of total assets from 92% in 1966 to over 95% in 1971, with every indication that they will continue to account for the lion's share of total funds accumulated for pension purposes.

TABLE 3. Trusteed Pension Funds by Size of Fund, Book Value, 1971

Size of fund	Number of funds	Percentage of funds	Total value of assets	Percentage of total assets
\$'000				
Under \$100,000	1,664	42	63,227	1
\$ 100,000-\$ 999,999	1,551	39	504,490	4
1,000,000- 4,999,999	459	11	1,004,198	8
5,000,000- 24,999,999	189	5	2,080,309	17
25,000,000- 99,999,999	60	2	2,904,512	23
100,000,000 and over	23	1	5,904,334	47
Totals	3,946	100	12,461,070	100

Source: *Trusteed Pension Plans, Financial Statistics*, Appendix B, Statistics Canada (Catalogue 74-201 Annual) (Ottawa: Information Canada).

Since trustee pension funds in aggregate are such a heterogeneous group they must be examined in terms of their component parts. Therefore, to facilitate analysis, pension funds were divided into fairly homogeneous groups by using size of fund as a criterion.

The first category is composed of funds with assets of less than \$1 million. Typically, they use pooled pension funds as their primary investment vehicle because the volume of investments tends to be too small to justify expenditures on individual investment analysis or investment counsellors. Since professional services are indirectly available through the pooled funds, the small funds tend to direct most of their money into this vehicle. While some of the smaller funds do engage in the management of their own assets and invest in both fixed income securities and equities, about 60% of the total assets in this size category are in the form of pooled funds. In recent years trust companies managing pension funds have tended to use pooled units for the smaller funds until they reach a level where individual management is economic and, at that time, establish an individually managed fund arrangement and remove the assets from their pooled funds. Fund growth has been remarkable and the shift to individual management has been so pronounced that the net value of some trust company pooled funds has declined perceptibly while corresponding increases were registered in their individually managed portfolios.⁷

For an analysis of larger funds, those with assets of \$1 million and over, it is necessary to categorize them according to the degree of flexibility they have with respect to investment practices. Some of the largest and fastest growing funds are subject to severe legislative restrictions in their investments, and these restrictions are so significant that they distort the portfolio composition for the group. To eliminate this distortion, large funds were divided into two groups - those with inflexible and those with flexible investment policies.

Funds with Inflexible Investment Policies

These pension funds are almost exclusively for programs covering employees of provincial, municipal or civic governments and it is this characteristic which shapes their investment policies. Most of them are required by law to invest in government obligations so their role in the capital markets is limited. An examination of individual funds shows that they tend to be heavy purchasers of their own obligations. Thus, municipal plans tend to have a large portion of their holdings in municipal securities and provincial plans tend to have mostly provincial paper.

While virtually their entire portfolio holdings are in bonds - some 90% - the distribution by types of

bonds held reflects the prevailing policies. Nearly three quarters of the aggregate portfolios are in provincial bonds, with the municipals accounting for about one eighth of the holdings and less than 1% of the assets in Government of Canada bonds. Some of the funds in this group apparently relaxed their restrictions to permit the purchase of mortgages and consequently mortgage purchases increased from \$9.7 million in 1966 to over \$26.4 million in 1971 (see Table 4). None of these funds carried any common or preferred stocks in their portfolios, contrasting sharply in this respect from the funds with flexible investment policies.

Funds with Flexible Investment Policies

Funds with flexible investment policies, which are confined largely to industrial pension plans, give managers considerable freedom to shift their investment strategies and to diversify their portfolios. The interest in equities as an appropriate investment medium has predominated non-insured pension funds in the United States where as much as 50% of the holdings are in stocks, and now it appears to be taking hold in Canada as well. Over the six year period from 1966 to 1971, the book value of stocks held by these funds rose nearly threefold from \$1.3 billion to \$3.1 billion. By 1971 stocks accounted for 32.5% of the assets held compared to 23.5% in 1966. Holdings of foreign securities were 6.1%, well below the 10% maximum allowable under the new Income Tax Act.

With this shift to stocks there was a sharp drop in the proportion of assets held in bonds from 55% in 1966 to 45% in 1971 (see Table 5). Contributing to this change in the portfolio profile was the decline in Government of Canada and municipal bonds which declined sharply in relative terms and by the end of the period began to decline in real terms as well. The book value of Government of Canada bonds which stood at \$421 million in 1966 peaked at \$478 million in 1969 and then dropped sharply each year thereafter to just under \$397 million in 1971; but in relative terms they declined steadily each year from 7.5% in 1966 to 4% in 1971. A similar pattern was evident in municipal bonds. What little new monies were channelled into these securities from 1966 onwards stopped entirely after 1969 when the value of municipals peaked at nearly \$495 million and they too started to go down in value. As with the Canada's, municipal bonds represented a declining proportion of total assets from 7.7% in 1966 to 4.7% in 1971. Over this same period the proportion in corporate bonds remained fairly constant at about 17%. Although provincial bonds increased slightly from year to year in real terms, they too fell in relative terms from a high of 23% of the total holdings in 1966 to just over 17% in 1971. The proportion of assets held in mortgages remained relatively constant at around 11% over this period but in real terms they increased sharply, and nearly doubled in value from \$651 million in 1966 to \$1,126 million in 1971.

⁷ This trend was observed in a review of individual trust company reports and confirmed in discussions with company investment managers.

TABLE 4. Funds with Assets of Over \$1,000,000 with Inflexible Investment Policies, 1966-71

Assets	1966		1967		1968	
	\$'000	%	\$'000	%	\$'000	%
Pooled pension funds	—	—	—	—	—	—
Mutual funds	—	—	—	—	—	—
Bonds:						
Government of Canada	7,337	0.7	10,160	0.8	10,966	0.8
Provincial Government	758,862	72.6	860,009	72.2	990,990	73.9
Municipal, School Boards	179,211	17.1	196,165	16.5	211,067	15.7
Other Canadian	14,568	1.4	14,803	1.2	17,060	1.3
Non-Canadian	507	0.1	498	--	546	0.1
Totals	960,485	91.9	1,081,635	90.7	1,230,629	91.8
Stocks:						
Canadian common	—	—	—	—	—	—
Canadian preferred	—	—	—	—	—	—
Non-Canadian common	—	—	—	—	—	—
Non-Canadian preferred	—	—	—	—	—	—
Totals	—	—	—	—	—	—
Mortgages:						
Ins. NHA	2,040	0.2	2,001	0.2	4,144	0.3
Conventional	7,656	0.7	8,140	0.7	9,275	0.7
Totals	9,696	0.9	10,141	0.9	13,419	1.0
Real estate and leasebacks	19	--	—	—	—	—
Miscellaneous:						
Cash on hand	53,814	5.2	4,366	0.4	4,611	0.3
Guaranteed investment certificates	191	--	328	--	470	--
Short-term investments	24	--	850	0.1	2,459	0.2
Accrued interest and dividends receivable	14,737	1.4	17,646	1.5	20,381	1.5
Accounts receivable	6,694	0.6	76,577	6.4	69,289	5.2
Other assets	—	—	33	--	—	—
Totals	75,460	7.2	99,800	8.4	97,210	7.2
Total assets	1,045,660	100.0	1,191,576	100.0	1,341,258	100.0

	1969		1970		1971	
	\$'000	%	\$'000	%	\$'000	%
Pooled pension funds	—	—	—	—	—	—
Mutual funds	—	—	—	—	—	—
Bonds:						
Government of Canada	11,601	0.7	10,347	0.6	9,976	0.4
Provincial Government	1,161,112	73.1	1,379,537	74.5	1,618,598	74.2
Municipal, School Boards	227,697	14.4	259,808	14.0	280,095	12.8
Other Canadian	27,473	1.7	11,700	0.6	16,455	0.8
Non-Canadian	590	0.1	396	--	206	--
Totals	1,428,473	90.0	1,661,788	89.7	1,925,330	88.2
Stocks:						
Canadian common	—	—	—	—	—	—
Canadian preferred	—	—	—	—	—	—
Non-Canadian common	—	—	—	—	—	—
Non-Canadian preferred	—	—	—	—	—	—
Totals	—	—	—	—	—	—
Mortgages:						
Ins. NHA	7,050	0.4	13,673	0.8	17,839	0.8
Conventional	9,105	0.6	9,821	0.5	8,630	0.4
Totals	16,155	1.0	23,494	1.3	26,469	1.2
Real estate and leasebacks	44	--	—	—	—	—
Miscellaneous:						
Cash on hand	4,890	0.3	8,999	0.5	4,756	0.2
Guaranteed investment certificates	692	--	545	--	1,116	0.1
Short-term investments	38,192	2.4	98,374	5.3	129,939	6.0
Accrued interest and dividends receivable	23,396	1.5	25,980	1.4	30,750	1.4
Accounts receivable	75,748	4.8	33,987	1.8	63,387	2.9
Other assets	—	—	—	—	25	--
Totals	142,918	9.0	167,885	9.0	229,973	10.6
Total assets	1,587,590	100.0	1,853,167	100.0	2,181,772	100.0

TABLE 5. Funds with Assets of \$1,000,000 and Over with Flexible Investment Policies, 1966-71

Assets	1966		1967		1968	
	\$'000	%	\$'000	%	\$'000	%
Pooled pension funds	286,951	5.1	348,692	5.5	404,635	5.7
Mutual funds	33,939	0.6	32,924	0.5	36,623	0.5
Bonds:						
Government of Canada	421,216	7.5	455,736	7.1	467,002	6.5
Provincial Government	1,286,430	23.0	1,479,653	23.2	1,518,798	21.3
Municipal, School Boards	432,229	7.7	489,780	7.7	483,200	6.8
Other Canadian	948,131	17.0	1,156,879	18.1	1,218,368	17.1
Non-Canadian	7,840	0.2	9,114	0.1	11,521	0.2
Totals	3,095,846	55.4	3,591,162	56.2	3,698,889	51.9
Stocks:						
Canadian common	1,021,143	18.3	1,087,809	17.0	1,338,782	18.8
Canadian preferred	29,093	0.5	36,651	0.6	47,812	0.7
Non-Canadian common	262,208	4.7	325,389	5.1	496,000	6.9
Non-Canadian preferred	1,283	--	2,652	--	7,098	0.1
Totals	1,313,727	23.5	1,452,501	22.7	1,889,692	26.5
Mortgages:						
Ins. NHA	370,621	6.6	361,237	5.6	373,639	5.3
Conventional	281,302	5.1	337,562	5.3	373,432	5.2
Totals	651,923	11.7	698,799	10.9	747,071	10.5
Real estate and leasebacks	37,651	0.7	45,100	0.7	47,080	0.7
Miscellaneous:						
Cash on hand	47,147	0.8	62,849	1.0	78,153	1.1
Guaranteed investment certificates	18,645	0.3	31,759	0.5	54,614	0.8
Short-term investments	26,498	0.5	43,646	0.7	70,154	1.0
Accrued interest and dividends receivable	48,154	0.9	48,786	0.8	53,463	0.7
Accounts receivable	26,675	0.5	33,486	0.5	39,976	0.6
Other assets	406	--	364	--	319	--
Totals	167,525	3.0	220,890	3.5	296,679	4.2
Total assets	5,587,562	100.0	6,390,068	100.0	7,120,669	100.0

	1969		1970		1971	
	\$'000	%	\$'000	%	\$'000	%
Pooled pension funds	459,840	5.8	499,053	5.7	545,640	5.7
Mutual funds	43,691	0.5	45,333	0.5	40,453	0.4
Bonds:						
Government of Canada	477,902	6.1	448,518	5.2	396,981	4.1
Provincial Government	1,523,883	19.3	1,568,406	18.0	1,666,911	17.4
Municipal, School Boards	494,769	6.3	491,422	5.7	451,995	4.7
Other Canadian	1,265,236	16.0	1,510,535	17.4	1,798,549	18.7
Non-Canadian	14,750	0.2	11,290	0.1	10,240	0.1
Totals	3,776,540	47.9	4,030,171	46.4	4,324,676	45.0
Stocks:						
Canadian common	1,668,501	21.1	1,974,932	22.8	2,459,541	25.6
Canadian preferred	61,242	0.8	61,833	0.7	69,976	0.7
Non-Canadian common	621,273	7.9	574,816	6.6	588,015	6.1
Non-Canadian preferred	6,224	0.1	9,466	0.1	7,821	0.1
Totals	2,357,240	29.9	2,621,047	30.2	3,125,353	32.5
Mortgages:						
Ins. NHA	428,297	5.4	506,673	5.8	620,690	6.4
Conventional	406,495	5.2	479,300	5.5	505,409	5.3
Totals	834,792	10.6	985,973	11.3	1,126,099	11.7
Real estate and leasebacks	47,406	0.6	44,968	0.5	44,240	0.5
Miscellaneous:						
Cash on hand	78,338	1.0	109,911	1.3	110,519	1.2
Guaranteed investment certificates	78,028	1.0	85,904	1.0	69,060	0.7
Short-term investments	122,510	1.6	166,524	1.9	108,445	1.1
Accrued interest and dividends receivable	55,581	0.7	62,499	0.7	71,151	0.7
Accounts receivable	34,553	0.4	37,135	0.5	44,629	0.5
Other assets	2,127	--	1,649	--	1,311	--
Totals	371,137	4.7	463,622	5.4	405,115	4.2
Total assets	7,890,646	100.0	8,690,167	100.0	9,611,576	100.0

It is interesting to note that nearly 6% of the assets were held in pooled pension funds. Generally speaking, these funds are aimed at serving the needs of the small pension funds that seek the same diversification, experienced management, trained investment counselling and other expertise available only to larger funds. It is evident, however, that some of the larger funds chose to purchase these services through pooled fund investments rather than set up their own investment facilities; also many funds, particularly those managed by a corporate trustee, use pooled funds units for specialized investments. This is particularly true of the mortgage funds where managers are often reluctant to buy mortgages directly because they may either lack the necessary expertise, or because of the unavailability of suitable mortgages.⁸ Similarly, foreign securities are purchased through these specialized funds. In general, most large funds that hold pooled fund units use them as a medium for mortgages and to a lesser extent for foreign securities which permit diversification into these areas without acquiring their own expertise in these types of investments.

⁸ Since some funds are "pooled mortgage funds" as a vehicle for their mortgage investments, mortgage holdings as shown in the portfolio profile tend to be understated.

Data on purchases and sales of securities for a given time period that would provide a clear picture of pension fund managers' overall investment strategies are not available. To obtain some understanding of investment strategies, however, one can examine year to year changes in aggregate portfolio holdings and asset distribution patterns. Since these changes represent the net results of the annual trading they provide some insight into what has been occurring. These changes were examined for funds that have flexible investment policies and, therefore, widely diversified portfolios, to see how these net changes were reflected in the investment portfolios.

Changing investment strategies of fund managers are not immediately reflected in the aggregate portfolios since these changes take effect gradually over a period of years. Policy shifts are normally implemented by a general change of emphasis in the kind of purchases made rather than a complete shift away from one type of security to another. In practice, over the short run, fund managers tend to react to variations in market conditions which may moderate the shift but do not reverse it. Thus, even though the general strategy may be to increase the stock portfolio, bonds may still be bought to a greater or lesser degree depending on prevailing market conditions.

TABLE 6. Net Annual Changes in Portfolios of Trusteed Pension Funds with Flexible Investment Policies, 1967-71

Asset category	Percentage of net annual portfolio change				
	1967	1968	1969	1970	1971
Pooled funds	11.8	7.7	6.7	4.5	7.0
Bonds	33.5	27.9	26.3	45.6	44.2
Stocks	36.3	48.7	45.7	24.1	38.1
Mortgages	5.8	5.7	8.5	15.1	10.1
Other ¹	12.5	9.8	12.9	10.7	0.2
Totals	99.9	99.8	100.1	100.0	99.6

¹ Largely cash on hand, guaranteed investment certificates and short-term securities.

Source: Unpublished data held by the Pensions Section, Labour Division, Statistics Canada.

This pattern of purchases is illustrated in Table 6. For the period 1967-71 an increasing proportion of the net new funds were channelled into equities but at the same time substantial proportions of the funds were still allocated to bonds as well as other securities. In 1968 and 1969 nearly half of the net new funds were put into equities with most of the decline occurring in the purchases of bonds. Only in 1970 was this general trend reversed. In that year less than one quarter of the new funds were put into equities while the proportion in bonds rose to over 45% of the total which reflects better anticipated bond income. In 1969 the average bond yields reached a peak of around 9% and stayed at this level over the following year, making bonds a more attractive vehicle for pension funds than they had been

in the past by providing a return competitive with the best mortgages. A similar pattern evolved in 1971 with about 44% of the new investments flowing into bonds but in that year the proportion channelled into equities also rose to over 38%. These high levels were attained, in part, by the commitment of the rather substantial liquid funds which managers over the previous four years had kept in the form of cash, guaranteed investment certificates and short term securities. The net result has been a shift in the general pattern of investments with increasing proportions of the total portfolios in common and preferred stocks (see Table 5).

Of particular interest is the evident expanded commitment to mortgages that started in 1967 and

continued in varying degrees over the following years. It would appear that fund managers have increasingly accepted mortgages as an ideal investment vehicle for pension funds. Mortgage loans combine relatively low risk (and virtually no risk for the government guaranteed NHA mortgages) with yields that are higher than those normally available from other fixed-income securities of comparable quality. Nevertheless, this shift was barely discernible in the total picture. Mortgages held by these large funds increased in value from \$834,792,000 in 1969 to \$985,972,000 in 1970 and to a record \$1,126,099,000 in 1971. In terms of total assets, however, mortgages increased only slightly in the aggregate portfolios from 10.6% in 1969 to 11.3% in 1970 and 11.7% in 1971. This apparently slow growth rate was due, in part, to the fact that annual repayments of mortgages tend to reduce the value of the outstanding amounts so that substantial purchases are needed if only to offset these repayments. Therefore, it takes a substantial increase in annual commitments to materially change the relative position among total assets.

Pension Funds Over the Next Decade

What about the future? Will the pension plans continue to accumulate funds at the same pace as in the past? If so, what is the probable extent and direction of this growth? Where will these vast funds be channelled and what will be the likely impact on capital markets?

As noted earlier, the reserves held by insurance companies for their pension plan business are part and parcel of the total pool of insurance company assets. Analysis of these pension funds cannot be separated from the overall life insurance company activity in the capital markets. Consequently, the projections presented here will be confined to the non-insured trustee fund sector of the system. Since these funds represent over 70% of the total pension funds channelled into the capital markets they, by sheer size alone, will have an enormous impact on the capital markets and, indeed, on the economy as a whole.

Long-run pension fund flows and the related economic impact depend upon a number of inter-related variables. On one hand, the general strength and stability of the economy has a direct effect on continued fund growth; on the other hand, because of the large pools of money involved the fiscal activities of these plans in themselves play an essential role in maintaining economic growth. Pension fund fiscal flows are affected by labour force participation rates (as commented on earlier), employment, coverage, contribution rates and benefit payments.

With respect to coverage, the growth rate of pension plans appears to have reached a plateau, particularly over the last half of the 1960's. Nevertheless, the upward trend has continued, though at a slower pace, and membership increases have kept pace with the

growing labour force. This largely reflected growing employment, particularly in the larger organizations with pension programs, rather than any significant expansion in pension plans.⁹

Contributions made by both the employers and employees constitute the major source of income. Directly affecting this flow would be any major changes in the Canada/Quebec Pension Plans. For example, in 1966 when these public plans were first introduced there was an immediate drop in asset growth of trustee pension plans in Canada for that year. In the following years the upward trend continued but from a lower level.¹⁰

What are the likely effects of the recent C/QPP amendments? In these changes the Year's Maximum Pensionable Earnings (YMPE) for which contributions are made will be increased from \$5,600 in 1973 to \$6,600 in 1974 and \$7,400 in 1975.

Although this undoubtedly will result in channeling some contributions from the private system into the public one, the effect on total flow of funds is expected to be marginal. YMPE increases reflect the inflationary pressures on wages and salaries and, consequently, as these increase so will all pension contributions. Furthermore, since over 85% of the plans in Canada are subject to Pension Benefits Legislation they are required by these Acts to fund all liabilities within a given period. Any "experience deficiencies" arising from inflation, or other factors for that matter, must be funded on a virtually current basis. These requirements, therefore, ensure a continuing and fairly high flow of monies to pension funds.

With the gradual maturing of pension plans and as more and more members reach retirement age and start to draw benefits, the payouts, the major drain on the fund, are bound to increase. Funds in Canada are rapidly maturing and annual payout in form of pension payments as well as lump sum withdrawals to buy annuities have been rising sharply so that they have more than doubled from \$238 million in 1966 to \$503 million in 1971. This upward trend in payouts points out the critical significance of maintaining a high earning capacity from investments. Indeed, pension funds to date, in aggregate, have managed to generate sufficient earnings to cover all or nearly all of their expenditures, including pension payments, lump sum withdrawals for annuities, repayments to terminating employees who leave for other jobs, administration costs and losses in sales of securities.¹¹

⁹ *Pension Plans in Canada, 1970*, p. 8.

¹⁰ See *Trusteed Pension Plans Financial Statistics*, Statistics Canada (Catalogue 74-201 Annual) (Ottawa: Information Canada, 1966), p. 8.

¹¹ Greater emphasis in recent years has been placed on increasing fund yields since it has generally been felt that the historical record was rather lackluster. As a result greater concentration has been placed on improved fund management.

Assuming that future fund earnings continue to grow in proportion to the fund costs, then the cash flows from contributions will be left free, as in the past, for the accumulation of assets to cover future pension liabilities.

The interplay of these forces, therefore, have a direct bearing on pension fund growth, but the direction and magnitude of this growth is materially affected by the general economic climate. In developing the projections of fiscal flows over the next decade it was assumed that there would be continued economic stability with no major crisis to force sharp employment cutbacks and widespread unemployment. A further assumption was that current population and labour force trends would continue.

Based on these assumptions it is reasonable to expect that pension funds will continue their upward trend, but the rate of growth is a matter for conjecture. In terms of the next decade or so, it can be assumed

Canadian funds will continue accumulating at about the average rate prevailing over the past few years. For example, the average year to year growth of trustee pension funds from 1966 to 1971 was calculated to be 11.7%. To provide some indication of future trends, growth rates of 10%, 11% and 11.5% were calculated and the results are shown in Table 7. These projections are based on book values so that the results do not reflect either inflation or unrealized capital gains of the assets already in the portfolios.¹²

¹² Daniel M. Holland in a study of pension funds in the United States concludes that "there is a real likelihood that the peak in pension funds' annual demands on capital markets will be reached sometime in the next twenty years". He goes on to say, however, that private pension funds in the United States will nevertheless continue accumulating at a healthy pace well beyond the twenty year period. Similar trends probably will develop in Canada but by considerable lags. Daniel M. Holland, *Private Pension Funds: Projected Growth*, National Bureau of Economic Research (New York: Columbia University Press, 1966).

TABLE 7. Estimated Trusteed Pension Fund Growth, 1971-85 (Book Value)

Year	Assumed growth rates		
	10%	11%	11.5%
	thousands of dollars		
1971	12,461,070	12,461,070	12,461,070
1972	13,707,177	13,831,787	13,894,093
1973	15,077,894	15,353,283	15,491,913
1974	16,585,683	17,042,144	17,273,482
1975	18,244,251	18,916,779	19,259,932
1976	20,068,678	20,997,624	21,474,824
1977	22,075,544	23,307,362	23,944,428
1978	24,283,098	25,871,171	26,698,037
1979	26,711,407	28,716,999	29,268,311
1980	29,382,548	31,875,868	33,191,666
1985	47,320,887	53,712,689	57,200,967

Assuming a growth rate of 10%, total assets currently running at \$12.4 billion (1971) are likely to be \$18.2 billion in 1975, \$29.3 billion in 1980 and \$47.3 billion by 1985. With an 11% growth rate, they would be \$18.9 billion, \$31.8 billion and \$53.7 billion respectively; at 11.5%, over the same period, assets would reach a total of \$19.2 billion in 1975, \$33.1 billion in 1980, and \$57.2 billion in 1985.

From these alternatives, 11% is the most likely growth rate. The degree of accuracy of these projections, of course, declines as one moves into the 1980's. While growth to \$18.9 billion in 1975 and \$31.8 billion in 1980 seems realistic there are too many unknowns to be able to say with any great confidence that assets will stand at \$57 billion by 1985, but nevertheless this is an

indication of the order of magnitude that may be expected.

Projected Portfolio Composition

Difficult as it may be to predict the future level of total assets, it is infinitely more difficult to say what the portfolio compositions may look like over this same period. Even if there were no changes in the portfolio composition and components were to remain in the same relative position there would be a tremendous demand for all forms of investments. As can be seen in Table 8, by 1980 stocks would more than double and over the next decade pension funds would also create a demand for some \$5 billion in stocks. Investments in bonds and mortgages would be \$10 billion and \$1.7 billion respectively.

TABLE 8. Projected Portfolio Composition of Trusteed Pension Funds, Book Value as of 1971 and 1980

Asset categories	Portfolio composition in 1971		Projected composition for 1980		
	Amount	Per cent	1980 assets distributed as in 1971	Projected distribution of assets	
				Amount	Per cent
	\$000.000			\$'000.000	
Pooled and mutual	945	7.6	2,423	2,232	7.0
Bonds	6,386	51.3	16,352	14,344	45.0
Stocks	3,214	25.8	8,224	11,156	35.0
Mortgages	1,170	9.3	2,964	3,506	11.0
Real estate and leasebacks	47	0.4	127	159	0.5
Miscellaneous	699	5.6	1,785	478	1.5
Totals	12,461	100.0	31,875	31,875	100.0

Prospects for an unchanging portfolio composition appear remote in the light of current trends. Generally speaking, stockholdings at current levels tend to reflect rather conservative investment policies, and continuation at the present proportionate levels of around 25% to 30% of assets would be valid only if the current energy crisis leads to a basic downward swing in the world economy. Discounting this rather frightening prospect, and in light of the trends over the past six years or more, stockholdings are more likely to increase in both real and relative terms. Again, the degree of change is subject to conjecture, but if the United States patterns are a guide, common and preferred stocks could go up to as high as 45% or 50% of total assets. Indeed some of the larger funds in Canada already have stockholdings of this magnitude.

Current trends indicate that when investment strategies are free to change there is considerable movement in the portfolio compositions. Large funds in particular are rapidly expanding their equity investments. There may be some dampening in the administrators' enthusiasm for common stocks in the light of the sad performance in the stock market during the energy crisis in late 1973 and early 1974. But assuming that long run expectations are for rapid adjustments to the crisis and continuing economic health, then pension plan administrators whose time horizons by definition are long run, stretching over thirty or forty years, should perhaps look at present stock prices as bargain basement opportunities.

In total, there are two key forces that will mitigate against too sharp a shift to stocks in aggregate holdings. First, and perhaps foremost, are the inflexible investment policies of those public sector funds which, because of legislative restrictions, must limit their investments almost exclusively to bonds.

Secondly, as noted earlier, in market situations when bonds produce favourable yields new monies are

channelled in this direction. These two factors tend to combine to keep the proportionate holdings in stocks down.

In addition to the apparent shift from bonds to stocks, there appears to be a slow but perceptible shift towards increased investments in mortgages. Over the past few years portfolio managers have come to recognize mortgages as an appropriate vehicle for long-term monies, and with their relatively high yields more funds are channelled in this direction.¹³

Given these long-run trends, it is expected that the portfolio distribution by 1980 will be as follows: pooled and mutual funds 7%, bonds 45%, stocks 35%, mortgages 11%, real estate and leasebacks 0.5% and miscellaneous 1.5%. Based on this projection, by 1980 stocks will increase to over \$11 billion, bonds to \$14 billion and mortgages to \$3.5 billion. The demand for stocks arising from pension fund growth alone will create enormous pressures on the Canadian equities market. Also because requirements in the Income Tax Act limit foreign stocks to 10% of the total portfolio, virtually all of this newly created demand will be for Canadian equities. This raises the question as to whether there are enough shares to meet the anticipated demand.

G.R. Conway, in a study produced for the Toronto Stock Exchange, pointed out that there was a very real likelihood that there would not be enough stocks around to fulfill this demand.¹⁴ He argues that, in Canada, "institutions are, in aggregate, relatively

¹³ Fund managers are currently examining the possibility of taking an ownership position in real estate projects giving pension funds a "piece of the action" rather than indirect involvement through mortgage loans. This approach is still in its infancy and is faced with some legal limitations which may initially inhibit this type of investment.

¹⁴ G.R. Conway, *The Supply of and Demand for Canadian Equities*, Toronto Stock Exchange, Toronto, Ontario, 1970.

conservative investors, concentrating their investments in larger corporations".¹⁵ Conway concludes that the demands created by pension funds will not only tend to thin out the market but will also tend to drive up the price of the shares. The American experience, however, seems to indicate that in the long run pension funds tend to expand their horizons and become somewhat more venturesome in their investments. Roger Murray points out that in the United States, fund managers tended initially to concentrate their investments in a relatively stable group of well-established companies, but ultimately as funds grew and matured, greater investment flexibility was introduced.¹⁶ A similar pattern may ultimately evolve in Canada.

¹⁵ *Ibid.*, p. 13.

¹⁶ *Ibid.*, p. 81.

As stressed in this article, the future distribution of funds into the range of available investment vehicles is open to considerable conjecture. Whether more money is channelled into the stock market, the bond market or mortgages, the fact remains that huge pools of funds from pension plans will be available for investment. With the enormous demands for developmental capital, housing, pipe lines and resource development facing Canada over the coming decade or so, pension funds will be in a position to play a prominent role as a major source for investment capital.

